University of Toronto
MEDICAL JOURNAL
VOL LXIII NO. 1

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Feature Article: "Physician Well-Being and Impairment"

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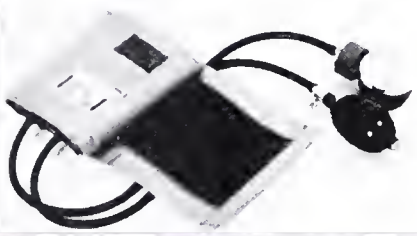

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GUIDELINES FOR PUBLICATION

1. All articles intended for publication should be submitted to the editors before the deadline which is usually six weeks before the release of the Journal.
2. Submitted articles should be typed (or legibly printed) double-spaced, single-sided on paper 8½" × 11" (letter size) and they should not be more than 20 to 30 pages (5000 to 6000 words).
3. Illustrations, graphs, diagrams and figures should be put on a separate sheet and identified by Arabic numerals. A list of explanatory legends for all the figures and diagrams should be put on another sheet. Do not write on the back of photographs.
4. References should be checked with the original sources, designated by raised Arabic numerals in the text, and listed in alphabetical order on a separate sheet. Each periodical reference should include in order: the author's last name and initials, title of the article, journal name, volume number, page number, and year (e.g. Risser JC: Scoliosis: Past and Present. *J. Bone and Joint Surg* 46 A: 167, 1964). For further information please consult the MLA Stylesheet.
5. The editors reserve the right to make changes as they see necessary to ensure correctness of grammar and spelling and clarification of statement and conformity. Those views expressed in the commentary do not necessarily reflect the views of the Journal staff.
6. Acceptance for publication is subject to the understanding that such material is submitted solely to the Journal and will not be reprinted without the consent of both the editors and author.
7. Two copies of each article are required.

Medical Alumni Association

- **THE MEDICAL ALUMNI ASSOCIATION** is the bridge between the graduates and the Faculty of Medicine, University of Toronto.

- The Association provides financial assistance (scholarships, bursaries, travel grants, fellowships loans) for undergraduates, as well as sponsoring programs that are of particular interest — General Practice Panel, Arts and Letters Committee, Undergraduate Affairs, Graduation Banquet, etc.

- At the Faculty level, there are two representatives on the Faculty Council, a representative on the Admissions Committee, and the Chairman of the Student Aid Committee is a representative on the Student Awards Committee.

- At the University level, the Association has two representatives on the Universtiy of Toronto Alumni Association, two representatives on the College of Electors, and a representative on the Varsity Fund Executive Committee.

- We are also represented on various Search Committees when Department Chairmen and the Dean of Medicine are being sought.

- The Association is also involved in providing some impetus to five year reunions. Two letters will be sent free of charge, for each class celebrating their reunion. Every attempt is made to keep an up-to-date address list of all our graduates. Please remember to notify YOUR Medical Alumni Association of any address change.

- The Association is governed by graduates who give their time and talent voluntarily. There is one full time employee. Donations given for Student Aid are used entirely for that purpose. Trust funds are administered, without charge, following the direction of the donor.

Editor's Message

The Editorial Staff of *The Medical Journal* welcomes subscribers and patrons both old and new to the 63rd year of publication of *The Medical Journal*. We hope to continue the traditional of excellence that has characterized previous issues. We remain dedicated to the tradition of *The Journal* as a vehicle for medical students' views on medical science and humanistic medicine. This year we hope *The Journal* will provide you with a spectrum of medical care ranging from health issues in the community to the most recent advancements in scientific research. For this year, we have chosen as our principal themes Psychiatry, Surgery and Clinical Immunology. However, we hope to encompass a far greater range of topics.

In this issue we address the prevalence of stress within the medical profession, and the price it exacts. This topic and its implications is explored by Dr. MERVIN VINCENT of the HOMEWOOD SANITORIUM. Dr. Vincent is well known for his lectures on stress given at the University of Toronto. Moreover, he has lectured extensively on this topic to health professionals in Ontario.

This issue is dedicated to the memory of the late Harry Whittaker who passed away this summer at Humber Memorial Hospital in Toronto after a prolonged illness. He was 72. Most graduates of the Faculty of Medicine at the University of Toronto will remember Harry with affection. He first came from Liverpool to the University of Toronto and joined the technical staff in 1930. He rose through the ranks from technician to chief technician in Histology. During the Second World War, due to the shortage of teaching staff, he became a demonstrator in the Department of Histology. He was later appointed a lecturer and finally in 1979 an assistant professor. Despite budgetary cutbacks, he continued to teach for 6 years after his retirement due to both his popularity among the medical students and his love of teaching them. For more than forty years, he had instructed medical students, and watched them transform into full-fledged physicians. He was often instrumental in motivating disenchanted first year medical students in perservering with their studies. It has often been said that a rare kind of magic existed between Harry and his students. To many he was a teacher, confidante and father. He had the unique gift of presenting Histology in simple, comprehensible terms. In recognition of his exceptional abilities, Harry was made an honorary member of the Medical Society in 1956. In 1975 he was honoured with the Outstanding Teaching award by OCUFA. He was also awarded in 1977 one of the distinguished service awards made on the occasion of the University's Sesquicentennial, and in 1984 the Dr. Mary E. Hollington Award for Excellence in Teaching in pre-clinical years by the Medical Alumni Association. Future medical students and physicians will not realize what they missed by not having experienced Harry Whittaker. He was a man with apt aphorisms and humor for every occasion. It is for these reasons that this issue of *The Journal* is dedicated to the memory of Harry Whittaker.

Warren P. Mason, 8T7
Pamela Stewart, 8T7

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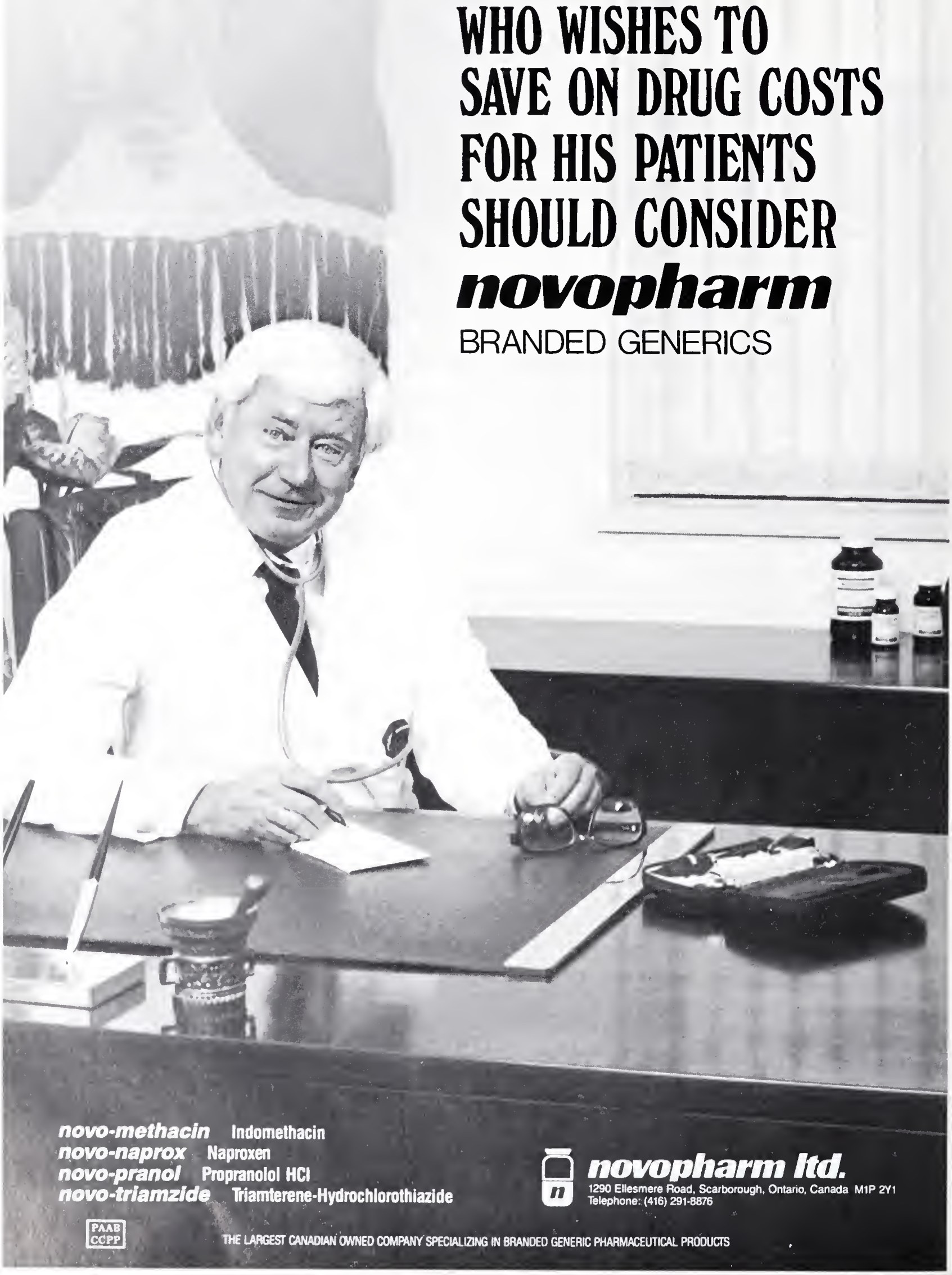

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As I Remember Harry: Memories of Harry Whittaker

Dele Davies, M.D., 8T5

The University of Toronto Faculty of Medicine Class of '85 graduated on June 13, 1985. Initially, the ceremony appeared to be the usual graduation ceremony, with all the parental pride, the pomp and the ceremony. Gowns and hoods flowed from the doctors-to-be in the pavilion as well as the old school of faculty doctors on the front stage at Simcoe Hall. The general atmosphere was one of joy and relief at the end of four years of toil and labour.

However, something was missing. Whatever it was, it was conspicuously absent. Or was it someone missing? The valedictorian gave the usual excellent polished speech reflecting four years of medical school. Somewhere in the middle of his speech, he put his finger on the missing ingredient. He drew our attention to someone we all loved and were going to miss after we graduated. The man — always with a smile under the thick framed glasses . . . yes, of course — Harry! All heads turned quickly to the front stage to catch perhaps our last glimpse of him before being dispersed to our diverse destinations. We wanted to pay due respect to this man for whom we all had a lot of admiration and to whom we owed a lot of gratitude. He was the first to have the faith to call us 'Doc' — in 1st-year medical school. He was always anxious to feed us hungry 1st year students the delicacies of histology. He was the one who liked to 'keep things simple'. Heck — he was one of us! But he was nowhere to be found. What! That was *very* unlike Harry. The valedictorian went on to pay due homage to this exceptional 71-year-old student in absentia.

The last time I saw Harry, he was on his sick bed at the Toronto General Hospital. It was my third visit to him since finding out that he had 'the dreaded disease' — cancer. You'd never have guessed it by the reception I received from the man. It was the Harry reception — thoughtful of others at a time which others would have spent being bitterly sorry for themselves. It was like my first visit all over again.

'Dele, I'm so sorry I missed graduation. I wanted to see you guys graduate so bad. And I wanted to meet your parents — I'd been really looking forward to that. . . If I recall, you were interested in doing Internal Medicine or Paediatrics. . . How are you enjoying your Internship? . . . I've always been confident you'd make a very fine doctor — whatever you decided to do. . . Thank you so much for coming to see me.'

That was Harry Whittaker, true to form. Of course he would have made graduation if he could have. The extracts from our conversation personify the qualities that made Harry close to the hearts of thousands of students and doctors. Not just an excellent teacher, Harry had an amazing capacity to show interest in others. He could remember people's names and their interests for years after they had left the Medical Sciences Building.

I recall having a conversation with a Staff Physician at the Wellesley Hospital Emergency. This was a few weeks after Harry passed away.

"Did you know Harry?' I asked. 'Of course' he replied. 'Everyone who went through U of T knew Harry. You know, I bumped into him a few months ago and he knew who I was and called me by name! That's quite remarkable considering I graduate over ten years ago with 249 other students. I wasn't exactly conspicuous in the histology class either,' he added.

To the 1st-year medical students and many 1st-year classes to come, Histology will be different. Trying to picture Histology without Harry is, for me, like trying to visualize a portrait without a background. Yes, Histology will survive. It just won't be the same. It's like growing up with your grandfather and going home from school one day to learn he's no longer there.

As for those of us who were privileged to know Harry, the memories will always linger on. The gentle smile. The constant reassurances that — yes, you *will* pass histology. And yes — *you* will become a doctor. Harry added that special warmth to the spirit of comraderie in Canada's largest Medical School which we will never forget. On my own behalf, and on behalf of all my colleagues who have graduated over the years — especially on behalf of the class if 8T5 — I say, 'Thanks, Harry!'

Acknowledgements

The author would like to thank Mrs. A. Randall for her assistance in typing this manuscript.

HARRY WHITTAKER

1913 — 1985

Most Alumni who have graduated during the last half century will recall Harry Whittaker who was the Histological technician in the Department of Anatomy, appointed in 1930, becoming Chief Technician in 1955.

Although he did not have a University degree, he became an expert cytologist and an excellent demonstrator. His ability in this regard was recognized by the University, who appointed him to the academic staff as Lecturer in 1969 and prompted him to Assistant Professor in 1982.

In the spring of 1984, the undergraduates selected him as the outstanding teacher in the basic sciences to receive the Medical Alumni Association Hollington Award.

The Medical Society has decided to establish an Undergraduate Award in memory of Harry Whittaker. The University of Toronto Medical Alumni Association will administer the Award for the Medical Society and will issue receipts for income tax deductions. Contributions for this memorial fund should be made payable to the Harry Whittaker Memorial Fund, c/o Medical Society, University of Toronto, and sent to The Medical Society, Room 2141, Medical Sciences Building, University of Toronto, M5G 1A8.

The Harry Whittaker Memorial Fund

The Harry Whittaker Memerial Fund has been established by the Students of the Faculty of Medicine in memory of Harry Whittaker, the man who dedicated over forty years of his life to understanding, supporting, teaching, and offering friendly guidance to medical students at the University of Toronto. The fund will be used for an annual award to be given to a First Year student who possesses those humane qualities characteristic of the late Harry Whittaker. Any donation will be greatly appreciated.

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"Physician Well-Being and Impairment: An Overview"

Merville O. Vincent, M.D. F.R.C.P.(C)
Executive Director
The Homewood Sanitarium of Guelph

The purpose of this paper is to indicate the importance of this issue to the medical profession. Part of the disease of being a doctor is an extreme need to appear ultra-competent to one's colleagues. Especially for a Meeting of The Royal College, I found myself facing a strong urge to make my presentation extremely scientific quoting many studies, presenting statistics, graphs and tested hypotheses, presented with the aid of 35 mm slides.

For better or worse, I have resisted the urge. I decided to follow in the steps of Dr. R. O. Jones, my Professor of Psychiatry in Medical School. When he reviewed a topic at professional gatherings, be it depression, psychotherapy or somatic therapy, he always sounded to me as if he had lived through it all, seen it all first-hand, and was just sharing with others what he had experienced. I always came away with the feeling, with all that experience who needed scientific statistical studies? So, today, I will try to present an overview — as I have experienced it.

The Early 1950's

Neither the physician's well-being nor impairment were ever discussed explicitly in my medical school in the early 1950's. My impression was that physicians faced two major problems in a lifetime. The first was to get into medical school and the second was to get out, with degree in hand. Surrounded by the problems of getting through medical school, I tended to assume that after medical school physicians were relatively immune to problems. This was not stated explicitly, but we neither heard nor saw evidence of problems, nor were we ever advised that there were potential problems for which we might prepare. I don't recall seeing a physician being treated in a hospital in Halifax for anything; I wonder now where they all went.

There were no discussions about drug addiction, alchoholism, affective-disorders, over-work or strains in the medical marriage, let alone suicide in our chosen profession. Yet, I do remember how we medical students used to snicker about one anaesthetist whom we all felt inhaled as much ether as the patient during operative procedures.

When the Nova Scotia Medical Society met each fall, many of us, medical students, used to fill our pockets with the readily available samples of dexedrine. We stored them till it got close to the next set of exams and our inevitable drive for the finish. It was not known as 'speed' then; we did not think it was a risky pattern. I can recall no comments about the practice from the Faculty.

I recall staffman working almost around the clock day after day. I was impressed with their competence, knowledge, and dedication to their patients and their profession. I looked up to most of them with admiration because I thought that they know everything, after all most were Fellows of The Royal College of Physicians and Surgeons. I, naively, assumed they were equally appreciated at home by family members.

In retrospect, I believe most physicians in the 1950's knew of one or two of their colleagues with major problems such as addiction, mood swings or marital problems and many knew of a physician who had committed suicide. However, each believed that this was an isolated exceptional situation and an unanticipated tragedy. It was not realized that these were examples of problems all too prevalent throughout the profession.

The Early 1980's:

Today, thirty years later, the situation is very different. The same problems exist, perfect solutions are not apparent, but the level of awareness has increased remarkably.

The topic appears to have reached the level of popularity within the medical profession that the topics of "Diets" and "Sex" enjoy with the general public. There is interest at the level of students, residents,

and practising physicians. In my experience, the most interested groups have been physicians' wives and family physicians. The surgical specialties, apart from Obstetrics and Gynaecology, seem to have shown little interest in the issues. In most Canadian Medical Schools now, there is an awareness of the problems and a desire to do something about them. However, it is my impression that in most medical schools there is still tension between those faculty members who feel their sole role is to expose students to the medical facts and those who see as part of the mandate of the medical school the production of healthy graduates who have a concept of a healthy doctor.

Why has there been this great change in the last thirty years? The interest and awareness began with the publication of several papers that included large samples of physicians treated in psychiatric settings in the U.S.A.,[1, 2, 3] the U.K.[4], and Canada[5]. These all appeared in the decade of the sixties, the decade in which the magnitude of the problem and the pattern of impairment were first described.

Three major types of physician impairment have been delineated. The first is the unethical physician. This is primarily an issue for licensing bodies and the law. The second is the incompetent physician, the physician who has not kept up-to-date. This is primarily an educational problem. The ill physician is the third type of impairment and, this represents primarily a health problem. Our focus is on the third category today as some illnesses impair ability to practice.

It is not by chance that today three of your presentors are on the staff of The Homewood Sanitarium in Guelph. Homewood is a 312-bed private, psychiatric hospital that celebrated its centennial in 1983. Physicians tend to seek out private psychiatric hospitals when they require hospitalization not only because they are looking for quality care, but also because of the desire for confidentiality and the difficulties associated with being hospitalized in their own communities or the hospitals in which they work. Thus, we have had over three hundred individual physicians admitted to Homewood during my tenure there, which began in 1960. Many others have been seen as private out-patients by our staff psychiatrists.

COMMON PATTERNS OF DISTRESS:

I. Overwork, Fatigue and Despair:

Typically, the subsequently impaired physicain does not control his practice, his working hours, or professional involvements. Increasingly, such physicians work long, self-destructive hours; soon, there is no time left for outside interests; all of life seems to be either scheduled in at the office, operating room, or in committees. The little bit of spare time that has been left is so small that the urgent things of medical life push out the important things that should have happened in the hoped for spare time. Thus, there is insufficient time for personal fitness, for relaxation, for solitude, for spouse, for family, for maintaining or developing broader avocations or for spiritual needs. The physician does not arrange to get off the tread-mill periodically or better still regularly. Often, this hurried existence leads to a truly chaotic existence. At this point, the doctor's life is characterized by disorder, inefficiency, irregularity, and always being behind. Since basically physicians are fairly organized individuals, such irregularity, always being behind, causes considerable frustration and anxiety. Unfortunately, the physician headed for difficulties at this point stays on the tread-mill and rarely delegates or finds healthy ways to escape or cut back. The result is mounting fatigue, exhaustion, irritability and depression.

II Alcohol Dependency:

There is no accurate data on the number of alcoholic physicians in Canada. However, there is no reason to assume that the incidence is any lower than in the general population. Certainly, it is a frequent diagnosis among populations of physicians being treated. The largest group is not those noted for their heavy drinking in medical school. The more common pattern is that of gradually increasing drinking after becoming established in practice. The common pattern is to begin to drink for a need — a need to relax, a need to forget the problems of the day, a need to get to sleep. The transition from social drinking to dependent drinking is very subtle; gradually, it becomes a daily occurrence.

Usually, the spouse or family is first to become concerned that alcohol is becoming increasingly important in the individual's life. Such physicians usually insist for some time that they can stop anytime if they wish.

> Dr. Joseph Pursh[6] described the two basic types of alcoholic physicians as "the closet drinkers" and "the party-boy drinkers". He noted that the "gentlemen drinkers' alcoholic habits were known to few"; perhaps only to his family; he was more likely to be a psychiatrist than a surgeon; his hobbies were solitary ones.

The "party-boy drinker" was the alcoholic physician who flaunted his huge tolerance for alcohol. His hobbies tended to be arm-wrestling, football, car-racing, and hunting big game and nurses.

III. Drug Dependency;

Physicians tend to have a blasé attitude about drugs. Often drug dependency develops as the physician tries to decrease his alcohol consumption and substitutes minor tranquilizers and sedatives. In the early phases of use of narcotics, minor tranquilizers and sedatives, physicians convince themselves that they know enough about drugs that they will use them intelligently and not get 'hooked'. Even when most obviously addicted, denial is a common feature.

The doctor-patients usually attribute their drug use to a combination of over-work, fatigue and pain from some physical disease. While this is often true, it explains too much. Most doctors at some time suffer from over-work and its resultant fatigue. Most of us, by middle age, have at least one disease and some vague aches and pains. But, most doctors do not become drug-dependent.

Most studies of drug-addicted physicians note that as a group they have high aspirations, difficulty in saying 'no', suggesting denial of limitations. This, in turn, is related to a vulnerable self-esteem and a basic insecurity. Their work patterns tend to be of the treadmill variety. They lack means of escape found by others. Other equally pressured physicians, rather than resorting to drugs, have found restoration in satisfactory home relationships, relationships with friends, activities in community and church and by arranging their priorities so that there was time for these activities as well as for personal recreation and vacations.

IV. Marital Conflicts and Failure to Develop Marital Intimacy:

The basic problem in the medical marriage is, how does one function effectively in two demanding systems? It is not easy to be a good doctor. It is not easy to be a good spouse and parent. It is downright difficult to function well in both systems. Both systems compete for the physician's energy, time, and attention. I believe that the crux of the problem is that when we can do one thing much better than another, we often direct our energies toward that which we do better; the other area is neglected.

I suggest that many good doctors when confronted simultaneously with both family and professional problems, choose to put their time and energy into the medical problems. Is this not partially a reflection of our educational experience? We function in two systems, the medical, where we were selected on the basis of certain characteristics and abilities which were further developed by years of training in medical school, internship, and residency and the personal which has become surpassed by the medical. The end result is that we are highly selected and highly trained to carry out effectively the activities and goals in the one system we have chosen — namely medicine. Physicians have learned how to have their personal needs met by being good physicians and have not learned how to have these needs met in intimate family relationships.

Confronted by tensions at home, the physician is tempted to retreat to professional pursuits that utilize the years of training, the area where *The New England Journal of Medicine* does help solve problems. Didn't our medical training teach us, at least by example, that work was always first and personal and family needs would come later; if, and only if, there was time? Didn't medical training suggest to many of us that *our* needs and the importance of family relationships should not interfere with the practice of medicine?

Physicians often come out of their educational experience with more fellowships after their name than in their lives. They often emerge from the educational process overly impressed with medical science and technology and under-valuing human relationships. Thus, many physicians are workaholics, over-committed to work and under-committed to their own personal needs and the reciprocity of personal-need meeting in close relationships. Often they do not appreciate their own value even in the doctor-patient relationship, that is apart from the technical skills that they bring to that relationship.

Physicians do a great deal of good and may obtain a great deal of professioanl satisfaction from their hard work, their commitment to patients and profession, which in turn brings recognition by colleagues and society. This is often done at a cost. Too late, many discover the cost was too high. While obtaining professional-esteem, the physician has lost closeness, intimacy and esteem at home.

V. Suicide:

The most final and unfortunate outcome of stress in the medical family is suicide. While some of the evidence about suicide in physicians is contradictory, it is fair to summarize the data as follows:

Male physicians have a slightly higher suicide rate than other males matched for age. Female physicians have a suicide rate slightly higher than the male physician rate, but three or four times the rate for all women[8]. These findings come primarily from the United States. I know of no accurate Canadian statistics. In a recent study of suicide in England and Wales, Sakinofsky[9] found a high suicide rate among

physicians. Equally disturbing was his finding that suicide-proneness of physicians' wives was much greater than that of wives of other professional group studied.

The final common pathway to suicide is the feeling of hopelessness. When one can see no hope in this world, suicide may apppear to be an attractive and reasonable option. Many different factors in varying proportions for each individual contribute to the development of that feeling. In the absence of a positive faith and philosophy, surrounded by disease, suffering, despair, and death, it is not easy to maintain hope. Often, the road to hopelessness is compounded by depressions, affective-disorders or the loss of personal freedom that is experienced when one becomes totally dependent upon the presence of alcohol or drugs, especially when the amount of these substances required produces physical, mental and emotional impairment. Being alone without a personal intimate network in times of difficulty also contributes to the feeling of hopelessness. This may be pertinent to the issue of suicide for both physicians and their spouses.

THE BASIS OF THE PROBLEMS:

I will direct your attention to four factors that contribute to impairment in the physician. They are:—

(i) Personal Vulnerability.
(ii) Inevitable stresses of the practice of medicine.
(iii) Unnecessary stress that is self-imposed by certain erroneous assumptions.
(iv) Response to stress that compound the initial problems.

Personal Vulnerability:

A number of retrospective studies as well as Vaillant's[10] prospective study all suggest that physicians who had arrived at medical school with the least stable childhood and adolescent environments were most likely to have difficulty. Insecurity in these developmental years, predisposed to insecurity in adulthood. The evidence strongly suggests that it is the insecure physician who is most vulnerable to the occupational hazards. The insecure physician, because of insecurity, has an excess of a number of normal needs. Thus, insecurity may stimulate:—

- an excessive need to be needed,
- an excessive need to be valued,
- an excessive need to be appreciated,
- an excessive need to be loved,
- an excessive need to be accepted.

Indeed, I suspect insecurity helped many of us get into medical school. The surest way to get into medical school is by obtaining very high marks. If one can combine a good dose of insecurity with reasonable intelligence and a drive to achieve, the result is often high marks. Arriving at medical school reasonably secure, there are still many factors within the medical school itself to shake one's security, ranging from the quantity of material to be mastered to the often unresponsive system, not to mention some fellow students and some faculty members.

Also, genetic studies increasingly affirm the role of genetics in predisposing people to affective disorders, alcoholism and possibly drug dependence.

Inevitable Stresses Associated with the Practice of Medicine:

The outsider might well think that medicine is very rewarding. It pays well; it is good for the ego; physicians rarely face unemployment and haven't done badly keeping up with inflation. While this is true, only the "insider" has experienced the heavy demands of patients that often seem infinite. The magnitude of the responsibility over another human life involving life and death decisions in the presence of a great deal of uncertainty about the best approach and outcome. This is an onerous task. It is stressful to be constantly dealing with people who are afraid, unhappy, suffering, facing long-term incapacity or death.

Cramond[11] in a survey of 810 physicians reported that all of his doctors were anxious, the clinicians more so than the non-clinicians. The two most anxious groups were general practitioners and surgeons; for once, psychiatrists were amongst the general medical population. The eight most common reported sources of anxiety were

(i) failure of treatment
(ii) diagnostic difficulties
(iii) impact of work on family life
(iv) death of children
(v) obstetric difficulties
(vi) emergencies
(vii) looking after colleagues and family
(viii) night calls.

Keeping up with the rapid advances of medicine is also a continuing and constant pressure.

Unnecessary Stress and Erroneous Assumptions:

There is also the unnecessary stress that is self-imposed by certain erroneous assumptions made by many physicians. Some of these assumptions are conscious thoughts; others are assumptions at an unconscious or pre-conscious level that direct the doctor's decision-making, feeling, and behaviour[12]. Some of

these hazardous assumptions include:

(i) Assuming that your role is to stamp out disease, suffering and death
(ii) Assuming your goal and the patient's expectations are the same and ignore the gaps between them.
(iii) Assuming that you are indispensable to your patients and to your profession.
(iv) Assuming that your personal quest for security will be met through your profession alone.
(v) Assuming that professional esteem and self-esteem are the same.
(vi) Assuming that you can be a clinician and yet be interested in only pure science not in ordinary "people-problem".
(vii) Assuming that cynicism could never become your problem.
(viii) Assuming that no patient will ever be angry at you or leave your practice for another doctor.
(ix) Assuming that all patients will be lovable and therefore will bring out the best in you.
(x) Assuming that your marriage and family relationships require only your spare time and energy.
(xi) A male physician assuming that he is God's gift to women, and who tells his wife that her feelings of jealousy are all based on her low self-esteem and that's her problem.
(xii) Women physicians assuming that being both a physician and a wife can be easy.

It is my belief that many of these assumptions are implicity encouraged in many of our medical schools as well as in the internship and residency training.

Unhealthy Responses to Stress:

Some physicians respond to stress in ways that only compound the problems. Often, the response is to work even harder, to retreat from family life, to obtain symptomatic relief through self-treatment, the use of alcohol, tranquilizers, or narcotics. In short, the response is to deny that there is a problem, yet on another level to decide to treat the problem, to be one's own doctor. Thus, denial often compounded by shame or guilt leads to delay in seeking appropriate treatment. This delay is often associated with further deterioration in the physician's own well-being as well as in family and personal relationships.

PATTERNS ASSOCIATED WITH IMPAIRMENT:

Impaired physicians are notorious for failing to seek help early on a voluntary basis. If we wait until physician is in deeper trouble, that is obvious to the whole community, we have done that physician a disservice. If, in the meantime, patients suffer, we also do a disservice to the public and to our profession. Faith in one's doctor is not only re-assuring in times of stress, but a real healing force. If this is shattered, we are all the losers.

Some types of impairment are grossly evident, such as intoxication when on call, alcohol on the breath at hospital rounds, or drunkenness on any occasion. Often impairment is more subtle, hidden from the world outside the physician's home.

The appearance of any of the following features should alert one to the possibility of a major addiction or emotional problem. Awareness of these features will facilitate early recognition and offers of help.

(i) A change of personality. The physician becomes more labile in mood, unpredictable and irritable. A previously outgoing physician may become quieter and less active or alternately a conservative one becomes flamboyant and reckless.
(ii) A loss of previous efficiency and reliability. This may show up in the Emergency Room, medical records, or in relationships with patients, nurses, or office staff.
(iii) Increase in sick days — perhaps explained as the flu, together with an increase in accidents of any kind.
(iv) Patients' complaints about the physician's attitude and behaviour especially when they remark on a change in demeanor.
(v) The development of indecision. This may present in a variety of ways, including slowness of work or over-conscientiousness resulting in a marked increase in requested consultations.
(vi) Isolation, professionally and socially, may be a forerunner of impairment, but almost always accompanies it.
(vii) Marital problems and or divorce are frequently associated with impairment. This relates to the next feature.
(viii) Problem children.
(ix) Frequent intoxication by alcohol and even more suggestive intoxicated behaviour in the apparent absence of alcohol use.
(x) Persistent over-work and fatigue, particularly when accompanied by a refusal to consider a vacation.
(xi) History of many moves from community to community or splitting from a group or partnership.
(xii) Legal problems which may indicate existing problems or may be the last straw to an already stressed physician.

WHERE ARE WE TODAY?

If the '60's was the period of recognizing problems, the '70's and '80's have been characterized by organized efforts to meet the problems. Much has been accomplished; much remains to be accomplished. In 1972, the A.M.A. House of Delegates adopted a Policy Statement that proclaimed it the "ethical responsibility" of any physician who was aware of a colleague with a problem to take "affirmative action" — "to seek treatment or rehabilitation for his fellow physician". The American Medical Association organized the first conference on "The Impaired Physician" in 1975. The Sixth Conference was held last week. The theme of last week's conference was "How to Get Programs on Track". The A.M.A. has also published an A.M.A. Impaired Physicians' Newsletter. This serves primarily as a resource to physicians and medical societies who are seeking to reach out and help the impaired physician. The A.M.A. also developed model legislation and has been a stimulant and resource to state medical societies seeking ways to help physicians. In the early '70's, only seven states had programs to aid impaired physicians; by 1980, this figure had increased to 41. By 1982, every state in the Union at least had a committee concerned with Well-Being or Impairment. Programs which have helped the largest number of doctors are those with a vigorous "outreach" component.

In Canada, predictably, progress has been quieter and slower. In 1974, the General Council of the Canadian Medical Association, recognizing the need for physicians to care for their own, encourage the setting up of Provincial Committees to identify and help sick physicians. It is my impression that Nova Scotia, Ontario, Quebec, and Saskatchewan have made the most progress, but there is interest and action in every provincial medical association.

It is important that there be committees in each province concerned with disabled physicians or more broadly with the physician's well-being. Such committees should exist at the level of the provincial medical associations and, in most provinces, at the level of the district or county medical society. It is often appropriate to have such committees or at least a mechanism for early recognition and consultation for the impaired physician at the level of the local hospital. Such committees must be very visible and be perceived as representing physicians' concerns. They must be seen by impaired physicians as their 'advocate' whose concern is their well-being and rehabilitation. A medical society program to aid the impaired physician must be well publicized to physicians and their spouses. It must clearly delineate channels for reporting and contact and set forth the philosophy of the program. That confidentiality will be maintained should be assumed and assured. A hot-line for reporting allegations of impairment, or even for anonymous calls from doctors with problems has been found useful. Later, other papers today will deal with some of the problems of special groups and some responses of organized medicine in Canada to the problems.

SUMMARY AND CONCLUSIONS:

I have documented the remarkable increased interest in physician impairment and physician well-being during the past twenty years. I have reviewed five of the major identified problems of impaired physicians. Behind these problems lie issues of personal vulnerability, inevitable stresses of medical practice, unnecessary self-imposed stresses and inappropriate responses to stress. In planning for the future and in terms of a public health model, we must pay attention not only to the individual, but also to the medical system.

Primary prevention then will have to concern itself with both personal vulnerability and the issues of restructuring the medical experience so as to decrease unnecessary stress throughout the medical system while making provision for appropriate supports within the community to lower the incidence of impairment. Some hard questions have to be asked: Does the system choose the vulnerable, or inadvertently mould vulnerability? Are some of the inevitable stresses, such as the number of hours on call in surgical residencies really inevitable or imposed by the system? Has organized medicine done all it can and should to aid physicians to meet the predictable stresses? Or is the mystique of the doctor with no personal needs, no need for rest and vacations, no feelings about patients, no sick time and little or no family time perpetuated in our educational system from the beginning of medical school to the end of residency training?

Secondary prevention or early case finding and appropriate treatment raises issues of the appropriate roles and relationships between fraternal organizations such as provincial medical societies and the licensing and disciplinary bodies. Both groups have the same goals, namely, a compassionate yet firm approach, that rehabilitates sick doctors, while safeguarding public welfare. While the goals are the same, the mandate, priorities and power of the two groups differ. Many medical associations are involved in out-reach, confrontation and "advocacy", seeking to get physicians into treatment early, before they have endangered the public. Active outreach and constructive coercion is not compatible with the role of the licensing body with its power to discipline and would be perceived as "a witch hunt".

Generally, licensing bodies come into the picture at the point that they have reason to believe a physician's impairment is a danger to patients. Ontario has a combined approach and provides an interesting model in that the College of Physicians and Surgeons not only protects the public, licenses and disciplines physicians, but also seeks to help the impaired physician.

A complex issue for therapists, medical associations and colleagues is the monitoring of the progress of the physician-patient in a way that protects the rights of both the physician-patient and the public.

Two reasons physicians often avoid treatment, or shorten their hospital stays are met by some medical associations providing interest-free loans and a list of physicians willing to do locums in such situations.

Tertiary prevention or rehabilitation for many impaired physicians should include a further educational experience related to their field of practice. It is hard to find such positions today. To develop them will require some funding from provincial medical associations and the co-operation of teaching and non-teaching hospitals and their medical staff. In rehabilitation, one cannot over-emphasize the positive role being played by networks of recovering and recovered physicians.

Excerpted from a presentation at a symposium of The Royal College of Physicians and Surgeons of Canada in co-operation with The Canadian Psychiatric Association at Montreal, Quebec; Wednesday, September 12th, 1984.

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Respirology Rounds
A Twenty Year Old Patient With A Chronic Cough

D. Elizabeth Tullis, M.D.
Robert H. Hyland, M.D., F.R.C.P.C.
Robin R. Gray, M.D., F.R.C.P.C.
From the Departments of Medicine and Radiology, The Wellesley Hospital

A 20 year old female clerical worker with no history of previous significant medical illness was referred for investigation of a dry cough of two years duration. The cough had been constantly present over the two year period but had become more severe by upper respiratory tract infections. These episodes resolved spontaneously after two weeks with no specific therapy. The cough was productive daily of small quantities of yellow sputum without heamoptysis but the amount increased during infective

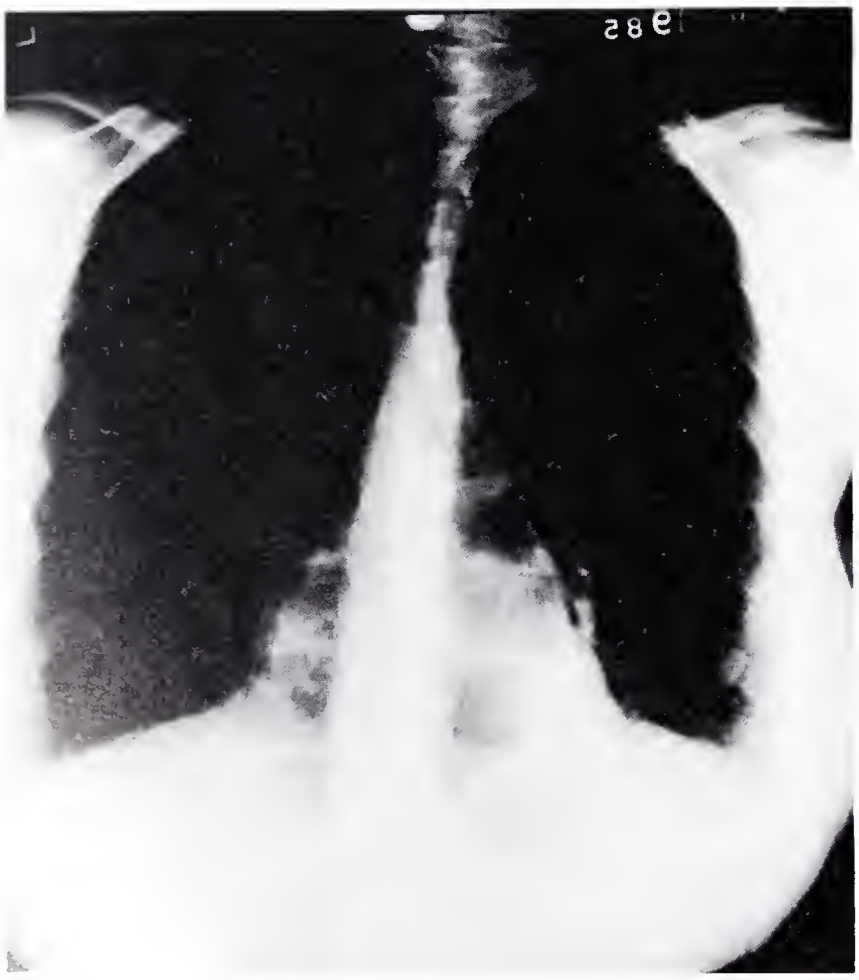


Fig. 1b

CXR, PA & Lateral (Fig. 1a & 1b)

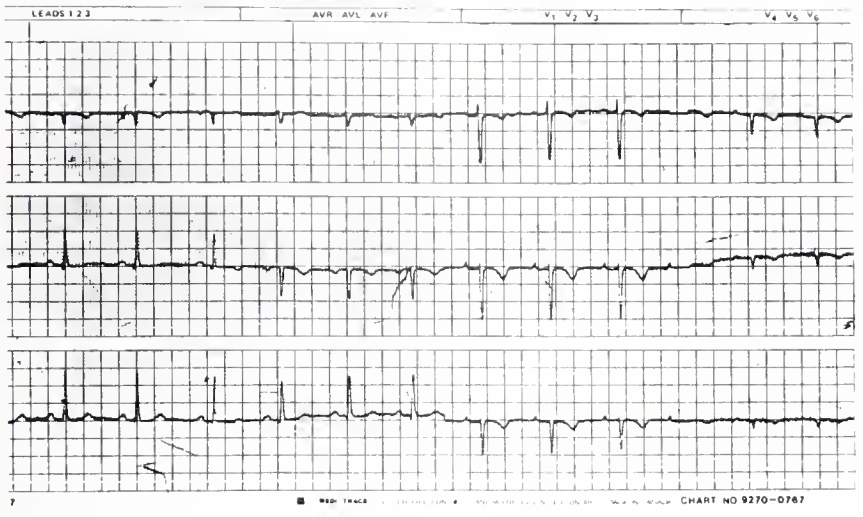
Did you notice that the chest roentgenogram was backwards? (Note the "L" marker on the film)
If the chest roentgenogram is read correctly, dextrocardia is present. In addition, there are increased bronchial markings in both bases and in the left base, branching tubular opacities are seen. These are indicative of bronchial plugging. The lateral view shows bronchial wall thickening and cystic changes in the middle lobe.

episodes. There was no associated wheezing, dyspnea or chest pain. She had a good exercise tolerance and was a non-smoker. The patient had also noticed a persistent clear nasal discharge over the same period but there was no history of sinusitis. There was no family history of respiratory disease and the remaining functional enquiry was unremarkable.

Physical examination revealed a healthy 20 year old female in no acute distress. There was no evidence of clubbing or cyanosis. On auscultation, bilateral basal crackles were heard, being worse on the left side. There were also scattered inspiratory and expiratory wheezes bilaterally. Heart sounds were normal with no murmurs and the point of maximal impulse was in the 5th intercostal space at the mid-clavicular line on the right side. The liver and spleen were not palpable and the remainder of the physical examination was unremarkable.

Pulmonary function tests were normal. The electrocardiogram and chest roentgenogram are shown below.

What is your diagnosis?



ECG (Fig. 2)
The electrocardiogram is consistent with dextrocardia with extreme right axis deviation, loss of R wave progression and inverted T waves in the chest leads. The negative P wave in lead one either signifies dextrocardia or incorrect lead placement (reversal of arm leads).

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Effect of Hippocampal Lesions In Rats On Memory

Charlie Cha, 8T7

The hippocampal formation is a structure in the brain responsible for the creation of memory traces which are subsequently stored in the neocortex. It is believed to act as a recording mechanism for the encoding of recent memories. In this experiment, electrolytic lesions were induced in the hippocampal formation of rats to investigate their effects on learning by a series of mazes. We found that small, discrete, unilateral lesions in the hippocampal formation impaired both retrograde and recent memory to varying degrees.

Introduction

It has long been suspected that the hippocampus plays a role in learning and memory in species ranging from rodents to man. Interrupting the hippocampal formation, which includes the hippocampus, dentate gyrus, and subiculum, causes impairment in the ability to acquire new information (5, 9, 10). In humans, this is supported by case studies of patients with anoxic injury to the hippocampi following cardiopulmonary arrest (2) and by those with unilateral temporal lobectomy (14). These clinical studies suggest that in cases where both hippocampi are damaged or removed, recent memory is affected but past memory and reasoning ability remains intact. Despite our present knowledge in this field, there is still ongoing research: some investigators attribute the amnesia to the loss of the neocortex; neuroanatomy and psychiatry textbooks emphasize the role of the hippocampus in storage of new information while rejecting or ignoring its role in retrograde or past memory (3, 4, 16); yet work by Parkinson, Bruni, and Rihal (11) found that bilateral hippocampal lesions impaired both retrograde memory and acquisition of new information.

This project investigates the effect of lesions in the hippocampal formation on pre- and post-lesion memory.

Method

Fourteen male, Sprague-Dawley rats weighing 110-120 grams were assigned to the following groups: A: rats that received lesions in the hippocampal formation (N = 7); B: operated controls (N = 2); C: unoperated controls (N = 4); and D: rats with non-specific lesion (N = 1). Memory was assessed by a complex maze apparatus described by Parkinson et al. (1). The adjustable apparatus allowed the use of six different mazes of varying complexity (Fig. 1). Prior to testing, rats were subjected to a 24-hour water deprivation schedule with unlimited access to food. The regimen provided the rats with sufficient incentive to run the maze without seriously compromising them. The parameters recorded for each trial were i) the time required to complete the maze, and ii) the number of errors made. An error was counted each time a rat put both forepaws past an "error zone". There was more than one error zone for long corridors. After successfully completing each run, rats were rewarded by access to water for 3 to 5 seconds. Each rat ran 10 trials per day. To minimize alfactory clues, the maze was washed and wiped between rats.

A difficulty rating of the different mazes was used to more accurately assess the pre- and post-operative ability to learn new mazes. This was done by multiplying the number of options a rat had at each decision point or turn on the path to the water, and taking the inverse of the result. For instance, a simple maze with three turns and two options at each turn would have a rating of $1/2 \times 1/2 \times 1/2 \times = 1/8$. The mazes used ranged 1/48 to 1/192 in difficulty ratings which are also the probabilities of a rat doing an errorless run by mere chance. The rats were deemed to have learned the maze when three consecutive runs of 5 seconds or less with no errors had been achieved. the probability of the rat achieving criteria performance without knowing the maze at all is, therefore, $(1/96)^3$, since the difficulty rating is 1/96.

Initially, the rats were introduced to the maze "concept" by the use of a simple training maze. Next, the

rats were trained on 1 to 3 mazes over consecutive days with blocks of ten trials per day. To prevent dehydration, the rats were given 24-hour access to water every three days followed by 24-hours of deprivation for re-enhancement of their incentive. After having learned the mazes, the rats were tested again on all the mazes before the operation.

Prior to the operation, all rats except the unoperated controls were anesthetized with ketamine and xylocaine mixture (2-3ml/kg). The animals were then placed in a Kopf stereotaxic frame with ear bars and incisor bars to secure the head in the correct position. Coordinates for the hippocampal lesions were selected from standard rat atlases (12, 13) and adjusted according to practice lesions (AP3.0, L2.5, H0.2mm). All the operated rats, except for the sham controls, received electrolytic lesions by lowering an electrode through burr holes in the skull and passing currects of 3.5mA for 30 seconds using a Grass LM-3 lesionmaker. Unipolar electrodes were fashioned by insulating stylettes with epoxy and varying the conducting tips.

The operated controls received the same treatment except for the electrolytic lesions. The unoperated controls did not receive any operative procedures, but rather remained in their cages during this time to control for the time difference and water deprivation.

On the second or third post-operative day, rats were tested on previously learned mazes to assess retrograde memory. They were then tested on new mazes to which they had had no previous exposure. After the results were recorded, the animals were sacrificed by transcardiac perfusion with 10 percent neutral buffered formalin. Their brains were serially sectioned in the coronal plane through the lesioned areas. The slides of the sections were stained with thiamine or Hematoxylin and Eosin and were examined microscopically to determine the lesion site.

Statistical analysis was applied taking the mean daily performance for each rat, in terms of time and number of errors. Results were placed into three separate groups: rats with hippocampal leisions; operated controls; and unoperated controls. The mean and standard deviation for each of the groups was taken for each day of testing. The results of the analysis were then plotted on graphs comparing the various experimental groups (Graphs A, B, C). A paired t-test was done on the lesioned group comparing the performance of each rat with itself pre- and post-operatively.

Results

Despite individual differences, all rats were able to learn the mazes pre-operatively. Their performance improved rapidly in the first few days, and less rapidly in the next few days until they achieved the criteria performance (3 consecutive runs of 5 seconds or less, 0 errors). Once a rat learned a maze, it continued performing optimally indefinitely, provided that it had two opportunities a week to run. After learning one maze, a rat learned subsequent mazes more rapidly. Preoperatively, all animals were able to learn the mazes in 4 to 5 days.

The control rats were not impaired throughout the experiment. At the beginning, the control group required 4 to 5 days to master a maze; later, it took them only 3 days. Periods of 3 to 4 days of inactivity had little effect on performances as long as they were thirsty. Severe water deprivation elicited a greater response to run the maze in terms of a faster speed but did not reduce the number of errors. All rats, controls and lesioned alike, were given equal opportunity to drink water, in an attempt to control the degree of water deprivation. Although the operated controls received all the operational procedures except for the electrical lesion, they were not hindered in either their performance of previously learned mazes or of new mazes; the results of the operated control group were compiled with those of the unoperated control group. Thus, surgery, inactivity, and anesthesia had little effect on the rats' performance.

The hippocampal-lesioned rats showed impairment in both retrograde and recent memory. In general, the rats seemed confused and made frequent pauses, often peering over walls or exploring an erroneous corridor as if they were new to the "maze concept". Retrograde memory assessment compared the rats' performance pre and post-operatively on the same maze (Graph A). A paired t-test was done comparing each rat with itself both in terms of time ($t3.5$, $df6$, $p<0.05$) and errors ($t2.7$, $df6$, $p<0.05$). The lesioned rats required a mean of 16.3 seconds/1.3 errors compared to their pre-lesion mean of 5.5 seconds/0.6 errors.

Recent memory was assessed by comparing the experimental animals with the controls in learning of new mazes. The improvement of the experimental rats was slower in the first few days, especially in terms of the number of error (Graph B, C). The controls achieved a mean of 6.6 seconds/0.5 errors in the second day of testing while the lesioned rats only achieved 13/1.2 on the fourth day of testing. Hence, there are two basic differences in the pre- and post-operative learning of new mazes by the lesioned rats: the performances were worse in the latter group, and the improvements, especially with respect to number of errors, were less (Graph C).

Inspection of the brains revealed that the lesions were typically spherical in shape and variable in both size and position. Even the largest lesion, however,

was small compared to the size of the hippocampus. One rat had bilateral lesions involving the dentate gyri and fimbria; it seemed relatively unimpaired compared with the other experimental animals, but it did worse that the control group in terms of retrograde memory. One rat had a unilateral lesion on its corpus callosum and a lesion in the contralateral hippocampus. It seemed impaired both in terms of retrograde and anterograde memory. Six rats had unilateral hippocampal lesions confined to the hippocampus and dentate gyri. These varied in the degree of impairment from unimpaired — one rat with a small unilateral lesion in the dentate — to severely impaired — a rat with a large unilateral lesion in the hippocampus and dentate. The latter rat was so impaired in acquiring information that it consistently made the same error 10 to 20 times within a single run.

Despite impairment in acquiring new information, the lesioned rats were able to learn *simple* mazes, although slower than the control group. Trials on a simplified maze showed that most of the experimental rats could remember a limited number of turns. The majority of the lesioned rats could not master the post-lesion maze in the four days of testing (10 trials/-day).

Discussion

Our experimental shows that the most severely lesioned rats have the shortest memory span for new information. A severely impaired rat runs around in circles, entering the same erroneous corridors repeatedly within a single trial. A less severely lesioned rat would retain information slightly longer — it would not repeat so many mistakes within a trial though it may retain little from trial to trial or day to day. The less impaired rats repeated less mistakes, and improved faster.

Historically, the hippocampus has been looked upon as an integrating circuit for the recording of new information (3, 4, 16). This study, along with that of Parkinson, Bruni, and Rihal (11), suggests that the hippocampus plays a role in retrograde memory as well. Furthermore, even small, unilateral hippocampal lesions can affect memory to varying extents.

In one clinical study, a patient with a temporal lobectomy and damaged contralateral hippocampus was given a general knowledge test both pre- and post-operatively. His performance deteriorated post-operatively (14), implying that both retrograde and past memory were affected by the bilateral damage to the hippocampi. Impairment in past memory may have been due to the lack of post-operative consolidation which would have reinforced the past memories, or due to the hippocampi being responsible for the retrieval of memories. It could have also be on due to loss of temporal neocortex.

Many other aspects of the hippocampal function require research. One intriguing question is whether the post-lesion deafness of the rats due to the ear bars affects their performance on the mazes. The operated controls were not affected but rats may have remembered a maze according to the pattern of sounds their feet make against the floor of the maze. Another question is whether a standard lesion will have equal effects in the right and left hippocampus of a rat since spatial ability is more localized in the right hemisphere while verbal ability is more localized in the left. Finally, it would be interesting to find out whether or not damage to the corpus callosum, which transfers information between the two hemispheres, would impair the animal's ability to run the maze.

The ultimate goal of research is better understanding of various clinical situations. In Korsakoff's disease, the degree of recent memory impairment is correlated with the extent of pathological changes in the mammillary bodies. Recent studies, however, have demonstrated a loss of dentritic spines from neurons in the hippocampal formation — specifically, in the hippocampus and dentate gyrus — which may be a better explanation for the memory loss (4). Korsakoff's Syndrome is attributed to a deficiency of thiamine and other constituents of the vitamin B complex, the administration of which will partly reverse the signs and symptoms. Thus, future research may focus on the treatment of hippocampal formation lesions with Vitamin B complex. Hopefully, such studies on the hippocampus may help us to better understand and treat Korsakoff's Syndrome and other related conditions.

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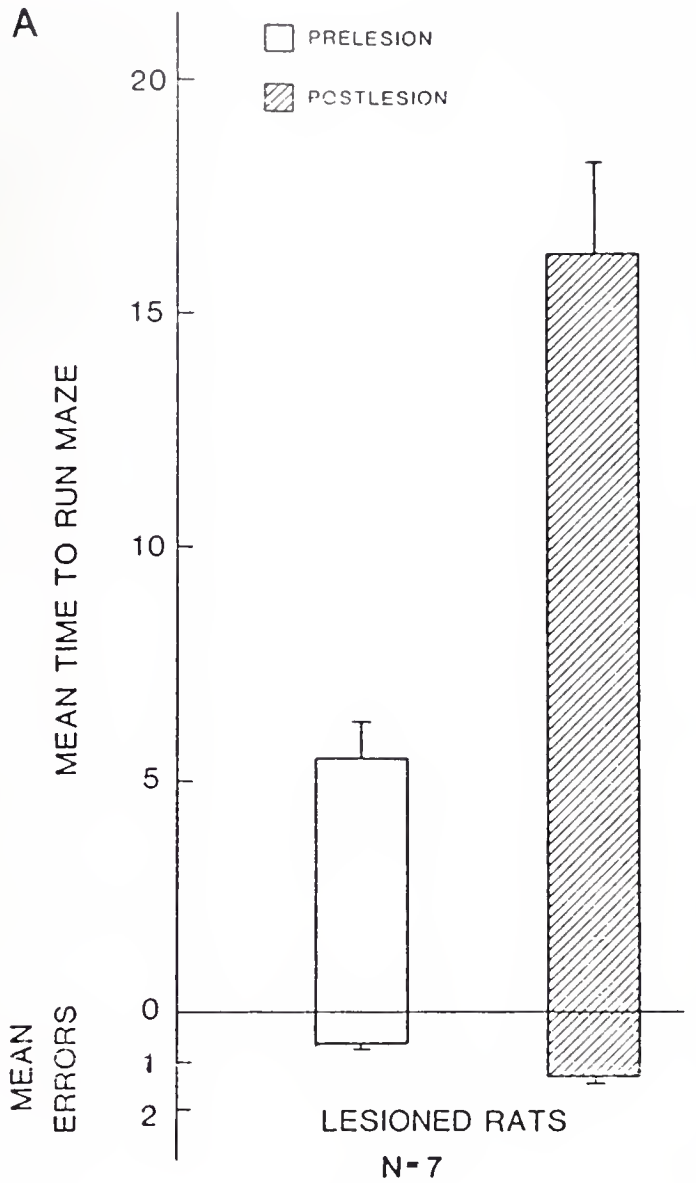

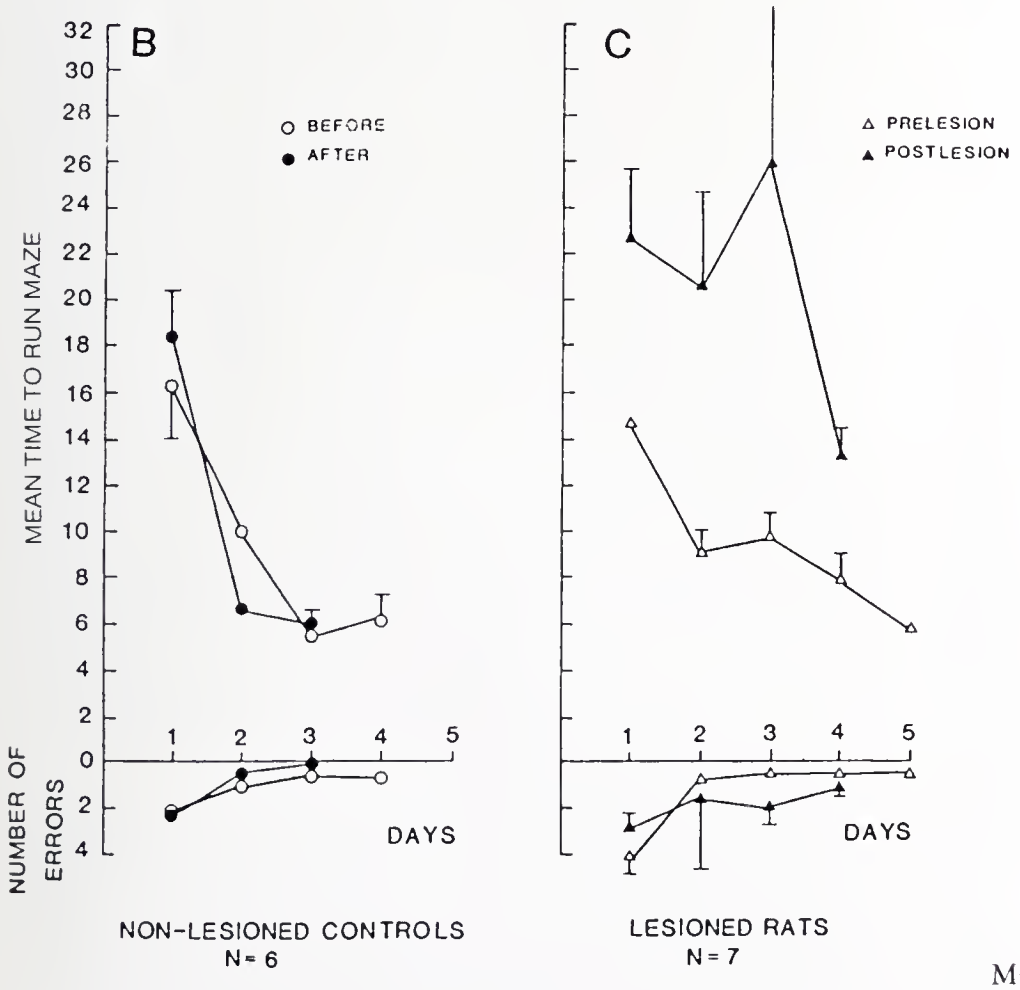

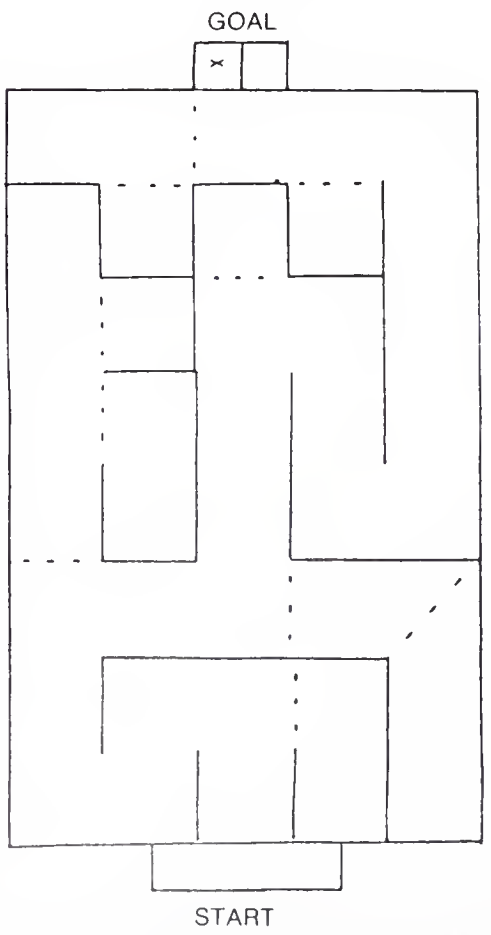

Maze showing typical configuration of testing apparatus. Broken lines indicate error zones.

Sudden Infant Death Syndrome How The Family Survives

Gweneth Sampson, 8T7

And God shall wipe away all tears from their eyes and there shall be no more death, neither sorrow, nor crying, neither shall there be anymore pain. Rev 21: 4 THE BIBLE

It seems intuitive that the death of an elderly or disease ridden individual is a release while that of an infant is a tragedy. Perhaps even more tragic is the unexpected and inadequately explained death of a perfectly healthy baby. How does the family body survive such an amputation? This paper will examine the impact of Sudden Infant Death Syndrome (SIDS) —in particular with respect to the parents. The journey of survival is painful and never ending. It is probably best facilitated when shattered members are allowed to seek out information and take from it what solace they can. With that perspective, the following review will explore the processes through which the family passes — the questioning, the grieving, the coping.

The Question of Why

One might expect that subsequent to the horror of finding their infant lifeless, parents question how such a nightmare could have happened. The incidence of SIDS has been documented as being as high as two to three per 1,000 live births (Zebal and Friedman, 1984). It is not *that* uncommon. Though many parents have heard of this syndrome few know much about it (DeFrain et al, 1982). As will be discussed later, the guilt ensuing this tragedy is enormous. There may be immense need for causal factors to alleviate the crushing emotional burden. It does little perhaps to comfort parents by listing for them the myriad hypotheses over SIDS etiology. It is a syndrome of the infant one month to one year with a peak incidence at eight weeks. (Tildon et al, 1983). As for other concrete data, researchers are still divided. Some maintain cerebral hypoxia or infection (Tildon et al, 1983) while other sources cite disorders of the [illegible] liver, central nervous system or immune [illegible] (Merritt and Valdes-Dapena, 1984). Unless a [illegible] has a grasp on anatomical structure and function, these explanations put them at a distinct disadvantage in resolving their self blame. Imagine the bewildered parents when, for example, they are told that their previously healthy baby must have suffered from an "apneic" episode. Ariagno (1984) is quick to point out that SIDS and apneic episodes are not synonymous. A more comprehensive explanation might be that there is an interplay of biological and environmental components (Tildon et al, 1983). What is emerging is a profile of risk factors that may predispose an infant to such a demise. Unfortunately the list is extensive. Tildon et al, (1983) present a table devised by Richard L. Naeye that includes demographic factors, maternal pregnancy factors, findings in the neonate or placenta as well as post mortem results. Young mothers may especially bear the brunt of guilt when they are told of the risks that their age has introduced to the infant. It is rather like shutting the barn door after the horse is gone to describe to a young mom that her baby died *because* she is young. A younger mother may have inadequate resources to deal with a new child — both emotionally and financially. If she is multiparous, the short pregnancy interval, mineral depletion plus or minus a smoking history all serve to endanger the infant more (Guntheroth, 1982, Steele, 1980). Yet while these items are statistically valid, SIDS occurs in homes where none of these elements are present and therefore the predictive power of such statements is neglible (Guntheroth, 1982). Ironically the young parents must cope with a death — possibly the first they have ever encountered. K. Silvio (1984) perceptively writes that she and her husband were only prepared to cope with life not death. Where then can parents turn? Whether having reconciled their anguish or not, the grieving process will commence.

The Process of Parting

The pain associated with SIDS is often unbearable due to the very nature of its occurrence. SIDS represents an acute family crises where there has been no forewarning or preparation for this sudden and unexpected loss. Even with the death of a fatally ill child, parents often have had time to develop a

beneficial support system (Zebal and Woolsley, 1984). As discussed earlier, the inability to isolate a cause may increase the difficulty in resolving the loss. Consider first the immediate consequences that the death brings. It is alarming but well documented that at this most tragic time some families face accusations of child abuse and other insensitive treatment (Zebal and Woosley, 1984, Steele, 1980). If that in itself isn't excruciating enough, families may face an investigation that is centered around an autopsy. This may include x-rays, toxicology analysis, microbiology work-up and tissue slide preparation (Guntheroth, 1982). If this death was at a small medical centre parents may have to orchestrate transportation of their dead infant to a teaching institution. Guntheroth (1982) sensitively discusses the trauma parents experience when they themselves must drive the infant's remains several hundred miles to a suitable facility. He also states that in America at least, health insurance may not cover the cost of the examination unless it is done by a teaching institution with a mind for teaching and research. How paralyzing this must be to the newly bereaved parents! One can't ignore however, that some parents may want this type of workup to attempt to answer that never-ending question of "why my baby?"

It seems cruelly analytical to compartmentalize the grieving process in a series of typical reactions. There is nothing typical about surviving the death of an infant if the infant is yours. In terms of providing the most constructive support for the parents experiencing this onslaught, Steele (1980) has compiled some essential recommendations for the emergency team. To really grasp the situation and prevent emotional trauma at a later date parents may want to hold their dead infant. He states that if they at first refuse, ask them again slightly later. They need immediate reassurance in terms of not being at fault and may continue to require this throughout the mourning period. There is no right way to progress through this mourning period. There is great variability among parents and between parents in regards to intensity, sequence and duration of grief reactions (Zebal and Woosley, 1984). Table one, adapted from Zebal and Woosley, (1984) gives a succinct picture of the range of feelings that parents undergo. It is important to always remember that parents never totally recover from the death of their baby. What does happen, however, is a degree of adaptation which time facilitates. DeFrain et al (1982) have collected data that suggests it takes between six to eight months to regain the level of family organization that was held prior death and an average of sixteen months for individual parents to regain the level of personal happiness they had before the death.

TABLE 1

GRIEF REACTIONS
Shock, disbelief, denial,
somatic reactions,
hostility and anger,
guilt and blame,
anxiety and fear,
depression and withdrawal,
disorganization and difficulties in functioning,
preoccupation and searching
(adapted from Zebal and Woosley, 1984).

By far and away, several authors emphasize that guilt is the most outstanding emotion seen in parents experiencing SIDS. Parents may retrospectively evaluate details of pregnancy, baby's birth, life and death to find that illusive cause or missing clue (Zebal and Woosley, 1984). Another aspect of guilt has been recorded by DeFrain et al (1982). For what may seem common place questions, SIDS parents encounter intense dilemmas. When asked how many children they have, do they count the dead baby? To avoid his/her enumeration may make them feel more guilty while including the infant may cause them to fear people's perspective of them as morbid. Parents also endure "anniversary reactions" (Zebal and Woosley, 1984). Along will come the date of the baby's first birthday, the first Christmas and the first year of his death. Parents might well try and spare each other further anguish by not revealing their feelings to each other or to other children. It seems inevitable that either well-meaning or not so well-meaning friends or relatives will add to the pain the family unit is experiencing. It is difficult to know what to say, when or how to say it. Steeles (1980) recounts a story of how painful it was to one parent for people to pretend that the infant had not existed. When all is said and done, words can never really console adequately but a few words and perhaps a sincerely empathetic tear are far more beneficial than avoidance.

Family Dynamics

How then does the family survive? The literature is somewhat conflicting on this point for it seems that some family units do *not* survive. DeFrain et al (1982) cite some researchers' estimates of post-death marriage breakup to be as high as 40-70%. They themselves found no divorces among a reasonably compiled list of SIDS parents in Nebraska. Zebal and Woosley, (1984) maintain that families *do* successfully adapt to the loss and some may even experience an improvement of the marital relationship. They add that marital breakup may occur in those cases where the "seeds" for such a termination were present before the baby's death.

One might rightly expect the relationships within the family to be acutely strained for a considerable length of time. All family members must deal with their own feelings but often also the needs of each other. For the parents this might involve role expectations, sexual needs and the myriad demands of siblings (Zebal and Woosley, 1984). Consider first the parents. It would be naive at this point to assume men and women are equal in their reactions to death particularly when it is that of their own child. Our socialization process still puts different demands on the different sexes and while that is not necessarily a bad thing, it complicates the grieving process as it occurs in the family unit. In an attempt to gather data to examine the question DeFrain et al (1982) ecountered an interesting situation. In their studies fewer men responded (40% of total) to their questionnaires and when they did they wrote less than women. DeFrain astutely acknowledges that this in no way indicates depth of feeling but rather supports the findings of Guntheroth (1982) and Steele (1980). Both these authors have found that the male as "head of the household" generally carries on in a much more stoical and less emotional fashion as one might have predicted. As much as our "liberated" society has said it is alright for men to mourn (at least in private if not in public) it appears most are unable to do so. DeFrain et al (1982) have collected several very poignant narratives from fathers who have longed to express their true feelings but for various reasons were unable. It seems some men do not know how to express what they truly feel while others feel that other pressures prevent them from doing so. Conversely, mothers can readily express feelings of purposelessness and question their maternal adequacy (DeFrain et al, 1982).

And what about the surviving children? It is well established that children grieve and do so very deeply (Zebal and Woosley, 1984). Expression of this grief may not be verbal as the child may lack in such communicative skills. Zebal and Woosley (1984) observe that in these instances children may express their feelings via behaviour or playtime activities. Behaviour changes such as bedwetting, whining and aggressiveness have all been documented (Steeles 1980). Reactions may be so intense yet so internalized that parents fail to recognize and respond. Steele (1980) would seem to advocate the active pursuit of continued open communication with siblings in regards to the specificities of the baby's death. He states that children as young as three will better deal with the truth versus the explanations their young minds furnish. In addition, the feelings of guilt associated with the death are not unique to the parents. Youngsters [illegible] may experience feelings of ambivalence at the arrival of a new brother or sister. There may be episodes of jealousy when vying for parental time and affection. It is not uncommon that sibs have wished this new infant did not exist and should this become reality, many children recall these sentiments with great guilt (Guntheroth, 1982). Children who are old enough to talk may continuously bombard their parents with questions which is extremely trying for the struggling parent (Zebal and Woosley, 1984). The explanations that mom and dad provide for sibs may actually be a source of great turmoil. DeFrain et al (1982) state that religious explanations may provide solace to some children while terrifying others. One child may be consoled in the thought that God took the baby home while another may be mortified with such a statement and wonder if he will be next. In summary it appears that the best means of long term survival is with consistent honest communication. Easily stated but painfully achieved.

The Question of Future Pregnancies

It is unfair for well-meaning "outsiders" to assume that the younger the infant was when he died the easier it is on the parents because they didn't have time to know the baby all that well anyway (DeFrain et al, 1982). Equally as insensitive is the thought that another pregnancy will resolve the problem. Many coupies *will* be desirous of becoming pregnant again but in so doing experience tremendous anxiety. They naturally fear that this unknown entity "SIDS" might again strike their household. They may seek out more information in regards to SIDS risk factors and this stressful plane of existance will not diminish until the age of their SIDS infant has been surpassed (Zebal and Woosley, 1984). It is understandable that parents fear a recurrence. Tildon et al (1983) record several cases in an Australian study where more than one family member succumbed to this syndrome. Merritt and Valdes-Dapena (1984) emphasize that the genetics involved in this disorder is not well understood and that environment may be more of a factor. If researchers are unsure, how much more so are the parents.

To better facilitate the journey through these stressful months following the subsequent baby's birth, modern technology has provided some hope. The evolution of home apnea monitors has provided respite for many families. It is important to reemphasize at this time that apnea and SIDS are not identical. In some children who have had a primary apneic apisode Ariagno (1984) cites recurrent episodes as high as 60-80%. While this is not true for all children it is almost impossible to convince parents who have experienced a SIDS death or experienced a subsequent pregnancy or experienced a single apneic

episode in a sib, that a monitor may *not* be the solution. Even when monitored carefully, some infants can not be resuscitated, (Tildon et al, 1983). There are well-documented "indications" for the home monitor system but SIDS parents of an asymptomatic child may be anxious to implement this scheme. It can in fact be deleterious to family dynamics and maternal bonding to have a monitor in use (Ariagno, 1984). These aspects of psychosocial dynamics have received some study by Black et al (1978) and Cain et al (1980) but one can intuitively predict the ensuing complications. Who shall bear the brunt of the responsibility for minding the monitored infant? Black et al (1978) found that mothers were given the bulk of the responsibility caring for a monitored baby 20-24 hours per day. Fathers and other family members offer more peripheral support and assistance. The monitor may actually have positive effects on the marriage but the logistics of its operation require much sacrifice (Cain et al, 1980). Finding a competent alternate caretaker for the infant in almost an insurmountable task and thereby prevents parents from having a "date" night to break the routine. Smith (1984) points out that it is infrequent that frustration is directed towards the infant *being* monitored but rather to the monitor itself or perhaps the spouse or health care professionals. K. Silvio gives insights into the practical problems a monitor introduces. The most ordinary of household routines must be restructured so the monitor can always be heard. Having a shower, blow drying one's hair or vacuuming all present major problems (Silvio, 1984). It appears that most parents would still more gladly deal with this anxiety than the alternative of facing a sleeping child that was unmonitored. Cain et al (1980) report that although three quarters of parents surveyed felt extremely anxious during the first week of monitoring, after one month's use three quarters felt the monitor helped them to feel more relaxed.

As for other complications the monitor introduces, there is a real entity known as vulnerable child syndrome that can result (Guntheroth, 1982). Parents of monitored infants may be so protective of them that as they mature they are prevented from normal healthy exploration and learning processes. The obvious dilemma that can then result is when to discontinue monitor use. Ariagno (1984) discusses certain criteria that must be met before monitoring is discontinued but generally it is concluded that monitors are unnecessary by the time the child is one year of age. Medically sound as that might be, one parent has described retaining the monitor for a full six months after her infant's clean bill of health (Silvio, 1984). To ensure survival of their baby or perhaps even of themselves, parents will go to almost any length. This is completely understandable but the added financial burden can not be denied when the rental of most apnea monitors must be paid for by the parents (Ariagno, 1984).

Aside from monitoring a subsequent infant what then is available for families to help them deal with SIDS loss? Guntheroth (1982) recommends the following preventative approaches: 1) education — This is for health care personnel most especially as the sensitive handling of SIDS SURVIVORS is instrumental to their emotional recovery. Firemen, policemen and even the general public would also do well to be informed of the nature of the syndrome; 2) general maternal and infant welfare — This would deal with elimination of as many risk factors as possible; 3) immunization timing; and lastly 4) public health nurse involvement in the families where risk factors for SIDS is high. Steele (1980) adds another important dimension to the management of SIDS and that is the necessity for support groups comprised of similarly bereaved individuals. Often pain that is best understood is pain that has been commonly shared. Many chapters or local offices have in fact been founded by parents who have lost an infant.

Hopefully it is apparent at this point that surviving sudden infant death syndrome is a complex and never-ending process. Amidst multiple theories of casualty parents must grope for some means of resolving their infant's death. The grieving process is highly personal and due to the nature of SIDS, is almost unique in the consequent guilt feelings. All family members are affected by this tragedy and while understandably difficult, open honest communication appears to be the best mechanism for long range adaptation. The problems of adjustment are myraid especially in the face of a subsequent pregnancy. With modern monitoring techniques some families have experienced a degree of comfort while passing through the critical months of peak incidence. Attention might well focus on prevention but positive support networks are absolutely essential to ensure family unit survival. SIDS is one of the most painful events some families will ever experience. Let us hope that someday with adequate research, treatment and counsel, there might at least be less death, less sorrow and crying and far less pain.

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The Psychological Effect of Therapeutic Abortion: A Review

Steven Moss, 8T7

The debate between pro-life and pro-choice rages on, and caught in the middle of this controversy is the woman with an unwanted pregnancy. Much has been argued and written on the ethical and legal considerations surrounding the abortion issue. This paper will focus on the psychological effects a woman may experience in the abortion process. The decision as to whether to have an abortion, the actual abortion procedure, and the aftermath of an abortion may present different psychological consequences. The woman's psychological history may determine whether there will be adverse psychological sequelae to the abortion experience.

Making the Decision

Recently, much research has centered on the attitudes and beliefs of those who choose either to endure or to terminate their pregnancies. Many investigations concerning the nature of pregnancy resolution have focused on the decision-making process itself[7]. Cognitive dissonance, the inner conflict between one's belief and actions, is a major psychological component of the abortion decision. While a woman may desire an abortion, external factors such as society's opinion, her family's feelings, and religious doctrines, make her believe that this decision is wrong. The conscience of society is divided between pro-life and pro-choice. This gives rise to ambivalence. Her family's feelings, real or imagined, may not only influence the decision-making process, but also affect her confidence in her final choice. Finally, the nature of her own and her family's religious beliefs will also affect a woman's adjustment to her situation.

Personal conflicts play an even more important role in the decision-making process. For example, the feelings a woman possesses about her own body have an important impact on her at the time of an unwanted pregnancy. These emotions involve her image of her own sexuality and womanhood[4]. According to Gispert, most women wonder about their fertility. However, once a woman does become pregnant, she may discover that she no longer wants a child. She could find herself at odds with what others may consider the climax in a woman's life — motherhood.

A woman's attitude toward her pregnancy is influenced by the stage of life she has reached. For example, those in adolescence associate pregnancy with being "grown up" or mature. For the adolescent who is deprived of love, a baby may be regarded as a source of unconditional love. In contrast, for those late in the reproductive cycle, pregnancy is helpful for denying the onset of menopause with its accompanying feelings of declining sexual attractiveness[4]. At either stage of life, the decision to abort can create dissonance, as the pregnancy may have been desired, but the child was not.

The third area creating confusion at the time of an unwanted pregnancy involves the woman's interpersonal relationships with her partner and her family. The effect of the unwanted pregnancy on these relationships may contribute to her dissonance during the decision process.

With regard to the male partner, the pregnancy may have been desired for numerous reasons. The woman may have wanted to test her partner's commitment to the relationship, or his feelings concerning marriage. She may have hoped to make the bond more permanent and to increase the man's involvement in the relationship, so that he would undertake more emotional and financial responsibility. The pregnancy, however, may become a burden, and conflict may develop if the relationship does not mature as was hoped.

Strong familial ties also provide a great influence on the woman's decision to abort.

The Abortion Procedure

While a woman is deciding whether or not to have an abortion, she must constantly be aware of the complications associated with abortions performed later in term. The particular abortion procedure performed is determined by the duration of the pregnancy, which itself may have been prolonged by a woman's ambivalence concerning termination. Though no abortion is pleasant, many confirm that abortions taking place in the second trimester are far more painful both physically and emotionally than those performed ear-

lier).

In the first trimester, dilation and evacuation (D&C or suction), is the most commonly employed method of abortion. Either a local anaesthetic, general anaesthetic or intravenous valium is injected to desensitize the cervix so that the woman feels no discomfort during the procedure. Once the cervix has been dilated, a catheter attached to a suction apparatus is introduced in order to dislodge the products of conception. This relatively simple procedure may be done on an outpatient basis and the woman usually experiences no pain[4].

If twelve weeks have passed, amnioinfusion or a saline abortion is the procedure used, and hospitalization is necessary. Twelve to 48 hours after either prostaglandins or a saline solution is injected into the amniotic cavity, the woman experiences contractions, and expels the fetus as she would in a normal delivery[4].

It is quite evident that there will be differences in the emotional impact with regard to which procedure has been used. One of the reasons that the second trimester abortion has a stronger psychological effect is that occasionally fetal movements are felt during this period of the pregnancy, so the fetus is experienced as a live being. Also, the expulsion usually involves painful contractions that are similar, but of a shorter duration, to those experienced in a term delivery. The woman may even see the aborted fetus which at this point possesses a more baby-like appearance[4].

After the abortion the women may have to explain to others why she is no longer "showing". Studies indicate that while first trimester abortees refer to their abortion experience in terms of "the pregnancy" or "the fetus," those that abort in the second trimester refer to the abortion as "labor," "delivery," or "childbirth".[3] Late abortees more often use the term "mourning" instead of "slight grief" or "loss" to represent their feelings after their abortions[3]. While studies indicate that psychological damage after first trimester abortion is exceedingly rare, this is not the case with abortions in the later stages of pregnancy. According to Frances Kissling, director of the National Abortion Council. "There are many number of psychological problems and ramifications in second trimesters. Having waited so long, they are going to have to go through the most traumatic medical type of abortion there is."[3]

After the Abortion

Guilt and depression are the two most common negative reactions following an abortion[4]. Guilt feelings [illegible] from numerous sources. A woman will very often accuse herself for having committed an immoral act — killing a potential child. She may consider herself as evil, or as one of society's criminals. Guilt feelings may also develop from self-blame for having created conflict in her relationships with those who fulfill significant roles in her life. A woman's guilt feelings may also be a result of her belief that she has deprived the father, or her parents of the child they may have wished for, but which she herself did not want.

Depression is the major category of negative reactions following an abortion. The woman may experience regret concerning the loss of the potential baby and of all the pleasures she had dreamed would accompany its birth. A woman's depression may also result from her feeling that she had been coerced into her abortion by others who participated in the decision. Guilt and depression may lead to other psychological sequelae such as a loss of desire for sexual activity, and an inability to relate to others, especially the male involved. In general, much of the psychiatric literature confirms the fact that negative post-abortive feelings are similar to a mourning process. Mary Calderone, past medical director of the Planned Parent Federation of America states that:

> Aside from the fact that abortion is the taking of a life, I am also mindful of what was brought out by our psychiatrists — that in almost every case, abortion, whether it be legal or illegal, is a traumatic experience that may have severe consequences later on[5].

Abortion: The Resolution of a Crisis

Some experts believe that in almost every case abortion is a traumatic experience for the woman. Others maintain that only when there has been a history of emotional disturbance prior to the pregnancy will the abortion experience result in significantly debilitating psychological sequelae[5]. Some studies have shown that many candidates for therapeutic abortion are emotionally disturbed women who became pregnant as a result of their emotional handicap. Thus the unwanted pregnancy may be the symptom rather than the cause of the psychopathology[5].

Brody and co-workers used the Minesota Multiphasic Personality Inventory on a large sample of women in a double-blind study to examine the psychiatric profile of women without a history of psychiatric illness before and after an abortion. They concluded that abortion patients without a previous psychiatric history are no different from the average population, except for their unwanted pregnancies. Any psychological conflicts exhibited by these patients before their abortion, rapidly disappeared following their abortion.

Although Osofsky has pointed out that of those who have claimed that there are psychological sequelae following an abortion have provided very little evidence to support their conclusions[8], current objective research, however, indicates that for women with no previous psychiatric history, long-term adverse psychological and social sequelae are exceedingly rare.

H.S. Greer et al. of King's College Hospital in London, did a follow-up study on three hundred and sixty women who underwent abortion in the first trimester by vacuum aspiration. Detailed, structured interviews with these women were carried out by the same investigator before the abortion and eighteen months after the abortions. According to this study, significant psychiatric symptoms occurred in only nine percent of the women after their abortions. Of these women, sixty percent declared that their symptoms were not related to the abortion at all.[6]

With respect to symptoms of depression, comparison between the mean scores prior to termination of pregnancy and three months later indicates a highly significant improvement at follow-up. When examining the degree of guilt, only seven percent of the women still experienced considerable or moderate guilt. Among the patients who did experience guilt, only a small number actually regretted their decision to abort. For those women who were married, the data indicated that termination of pregnancy did not create marital disharmony. Most women indicated that other interpersonal relationships changed. In 87 per cent of the cases, the change was for the better, while in only 13 per cent the change was for the worse. A majority of the patients (95 per cent) whose interpersonal relationships had improved attributed this improvement to the abortion. Finally, the research indicated that sexual adjustment also improved significantly. The proportion of women whose adjustment was rated as satisfactory increased from 59 per cent before the abortion to 74 per cent at three months follow-up[6].

Walter, concluded that, "There is no clear documentation for significant psychological sequelae after abortion. The reaction to abortion is determined almost entirely by a woman's previous psychological set."[9] His study indicated that the degree of guilt varied from zero to a maximum of thirty per cent; almost none of the guilt was severe. He also noted that the small amount of guilt that may have occurred did so immediately following the abortion and decreased with time. The occurrence of true depression was extremely low, and suicide related to the abortion was virtually non-existent in the data. Walter summarized the conclusions of many researchers:

> Legal abortion can be performed without fear of psychic harm to the woman, and that although emotional stresses of parturition would suggest the induced abortion could be traumatic and damaging to the woman, the available literature does not confirm such a hypothesis[9].

Furthermore, abortion may represent a positive turning point in the crisis of an unwanted pregnancy. According to Adler, the two most common emotions felt by a woman following an abortion are relief and happiness[1]. A woman who has undergone an abortion experiences relief from the stress that is associated with an unwanted pregnancy. The abortion has resolved her problem. At the same time, she may be encouraged to state more clearly what her life's goals are, and the way in which she will accomplish them. Adler maintains that the abortion removes potential constraints on a woman's life, giving her another chance to attain her aspirations.

Moreover, for many younger women, having an abortion is the first major decision they have ever made. The young woman may gain a sense of mastery at having acquired control over her reproductive cycle. A special closeness with those significant people who showed concern for her in her time of need may result.

Follow-up studies conducted some time after the abortion indicate even more positive reactions and fewer undesirable feelings than do studies conducted immediately after an abortion. In some long-term studies, less than five per cent of patients felt emotionally worse-off several months after an abortion, whereas 71 per cent felt improved and 24 per cent felt the same[7].

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Conclusion

It has been suggested that for the typical woman a therapeutic abortion results in a variety of short-term psychological consequences. These may range from feelings of relief and purpose to a sense of guilt and depression. For a mentally healthy woman, an abortion is often perceived as a solution to a crisis. However, a woman who has psychological problems prior to her pregnancy may become pregnant as a direct result of these difficulties. Such a woman may continue to experience psychological difficulties following an abortion, as the pregnancy was only one aspect of her problems. In general, for an emotionally unstable woman, an abortion can be an aggravating factor which produces long-term, adverse psychological sequelae. However, for the emotionally stable woman, long term adverse psychological sequelae are rare.

Acknowledgements

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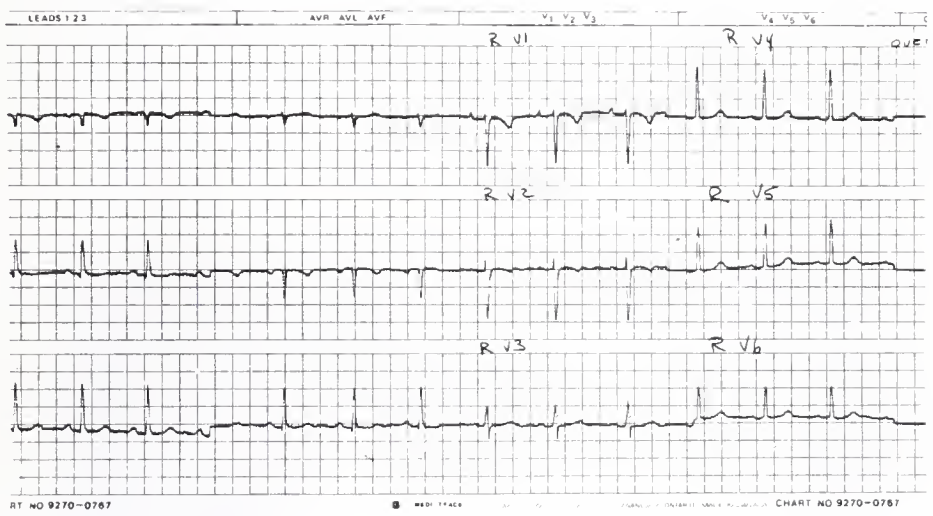
Diagnosis: *Katagener's Syndrome*

Discussion

The triad of bronchiectasis, sinusitis and situs inversus was named Kartagener's syndrome in 1933. More recently the broader term "immotile cilia syndrome" has been used but in fact "ciliary dyskinesis" may be a more accurate term.

The immotile cilia syndrome is a genetic disorder with autosomal recessive inheritance. The prevalence of Kartagener's syndrome (with situs inversus) is estimated at 1 in 68,000. (1) With the advent of electron microscopy the structural abnormality of the cilia can visualized. Cilia are composed of microtubules arranged in a pattern of 2 central an 9 peripheral. The peripheral microtubules are attached to the central structures by radial spokes and dynein arms are attached to the peripheral microtubules. These dynein arms are composed of ATPase and form temporary cross bridges between adjacent ciliary filaments. The above structural arrangement appears to be neccessary for normal ciliary motility. The absence of dynein arms causes the distorted ciliary motion in Kartagener's syndrome. (2) The absence of radial spokes or other components of the cilia also leads to abnormalities in ciliary function. (3), (4)

Ciliated epithelium is found in the nasal sinuses, eustacian tubes, middle ear, oviducts, vasa efferentia and the ependyma lining brain ventricles and spinal cord, as well as the respiratory tract. The tail of the sperm is also a modified cilium. Finally the sensory hairs of the olfactory cells contain dynein arms and the differentiating cells of the embryo are ciliated. (2), (6) By knowing the location of ciliated cells in the body, the symptoms of the immotile cilia syndrome can be deduced. As a consequence of the ciliary dyskinesis, the mucociliary clearance of the respiratory tract is impaired. The reduced mucociliary clearance leads to repeated infections of both the upper and



ECG (Fig. 3)
If the precordial chest leads are placed on the right side rather than the left, there is now normal R wave progression. The limb leads have not been changed and there is still right axis deviation and an abnormal P wave vector as well as transposition of leads II and III.

SINUS (Fig. 4)
Sinus roentgenogram shows that both maxillary sinuses are opacified.

lower respiratory tract. Eventually bronchiectasis may develop. Sinus involvement is the least distinctive sign in Kartagener's syndrome and hypoplasia or absence of the sinuses, polyposis or infection may occur. Chronic or recurrent otitis media can lead to a conductive hearing loss. Patients may complain of a poor sense of smell. Up to 50% of patients experience a chronic headache and few have a history of a depressive illness but whether this has any relationship to the ciliated cells in the CNS is unclear. (2)

Fifty percent of patients with immotile cilia syndrome do not have situs inversus. Afzelius postulated that normal cilia on embryonic epithelia are responsible for the dextral rotation of the viscera due to their position and fixed beat direction. In embryos having abnormal ciliary motion, the rotation of the viscera still occurs but is random. Therefore in 50% the rotation is dextral and results in normal visceral position and the remaining 50% undergo sinestral rotation leading to situs inversus. (2) Abnormal ciliary function leads to infertility in males; females have reduced fertility but are generally not sterile. This diagnosis of this syndrome can often be presumptively made on the basis of history and physical examination. As mentioned above, dextrocardia is not present in all cases. Although it is not often critical to obtain biopsy proof, this can be done quite easily with a nasal mucosal biopsy in which the cilia are examined by electron microscopy. In a male the sperm motility may be evaluated less invasively. (5)

L BRONCHOGRAM (Fig. 6)
The bronchogram of the left lung reveals that it is an anatomic right lung in that it has a middle lobe. There is marked bronchiectasis involving the middle lobe and all segments of the lower lobe except the apical segment.

CT [illegible]
[illegible] eries and small bowel follow through reveal situs inversus [illegible] other abnormalities.

The major morbidity of this syndrome comes from recurrent respiratory tract infections. These may be associated with severe life threatening heamoptysis. Therapy should therefore be aimed at trying to prevent these episodes. The location of bronchiectasis can be documented by bronchogram or, more recently, CT scan. The patient must then be taught and encouraged in a daily program of chest percussion and postural drainage with the involved lung segments in a non-dependent position. Superimposed infections should be treated promptly with appropriate antibiotics. Influenza and pneumoccocal immunization may be helpful. Although many patients with bronchiectasis cough up copious quantities of sputum daily which may present somewhat of a social problem, careful management can allow these people to live a relatively normal life.

R BRONCHOGRAM (Fig. 7)
The bronchogram of the right lung reveals extensive bronchiectasis in all segments of the lower lobe except the superior segment. Anatomically this is a left lung as there is a lingula, which also shows bronchiectasis. The upper lobe bronchus shows evidence of chronic bronchitis.

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The M.D./Ph.D. Programme — A New Initiative

Dr. M. Silverman, M.D., FRCPC
Co-ordinator, M.D./Ph.D. Programme

Some two years ago, with financial support from the I'Anson Fund, Faculty Council approved a combined M.D./Ph.D. programme at the University of Toronto. In the Fall of 1983 it was my privilege to take up the position of M.D./Ph.D. Co-ordinator and to start the process of recruiting students. The purpose of this short article is to inform some and update others about the progress that we have made in establishing this exciting new initiative in the Faculty of Medicine.

The first task was to develop an explanatory brochure and poster for the purpose of announcing and publicizing and M.D./Ph.D. Programme. This was accomplished and circulated locally and nationally to all Faculties of Arts and Science, Graduate Schools and Medical Schools.

As outlined in the School of Graduate Studies and Faculty of Medicine calendars, students can indicate their desire to join the program simultaneously with their application to medical school after completing two, three or four years of undergraduate training. Medical students who develop an interest in research during the first two preclinical years are also eligible to apply. Full time graduate students if accepted into medicine can enter the program and defer medical school until their Ph.D. degree has been completed. For complete details, please consult the Calendar of the School of Graduate Studies.

Applications were immediately invited for *a one time only* April 1, 1984 deadline. Two of the applicants were selected to become the first students in the combined M.D./Ph.D. programme. Gregory Hare, a second year medical student began his research in the Department of Physiology under Dr. Dan Osmond, and Ellen Grant began her stint as a full time student in first year medicine and is simultaneously registered as a part time Masters student in the Department of Physics under the supervision of Dr. Charles Lumsden.

With the programme now firmly in place a permanent fixed deadline was established, coincident with the deadline for applications to medical school — in other words, *November 15 annually.*

Thus in a small but significant step the M.D./Ph.D. programme has been set in motion. Since this is an entirely new venture for the University of Toronto, inevitably a number of misconceptions have arisen about eligibility criteria and about the relationship of the M.D./Ph.D. selection process to Medical School admission.

Goals of M.D./Ph.D. Progrmme

It is important that from the outset these issues be clarified and that there be a clear understanding of the philosophy behind the project and an ennunciation of the goals and objectives which are sought.

Let me begin by indicating what the M.D./Ph.D. programme is *not!*

1. The M.D./Ph.D. programme is *not* an alternate way for students to seek entry into medical school. It is evident from many telephone enquiries as well as formal applications to my office, that some students who were previously unsuccessful in entering medical school and have started towards their masters degree feel that the M.D./Ph.D. programme might somehow become a side door from which they could bypass the usual medical school admissions procedure. This is not the case. No student will be admitted to the program who is not deemed suitable by the traditional admission standards in the Faculty of Medicine.
2. The M.D./Ph.D. programme is *not* to be considered as a potential source of funding for students who are already well advanced into their graduate school careers. Such students would be better advised to complete their Ph.D. degree and then apply to medical school if they so desire.
3. The M.D./Ph.D. programme was not established as a program to be run under the jurisdiction of

any particular department within the Faculty of Medicine, either conceptually or budgetarily. The co-ordinatorship will rotate every three years from one department to another and has been started in the Institute of Medical Science.

Having reviewed what the M.D./Ph.D.programme *is not,* let me turn to what I consider to be its raison d'être.

If one surveys the University of Toronto Faculty of Medicine teaching hospitals, their mission consists of *patient care, teaching* and *research.* These are considered as three parallel elements and are supported at all levels within the Faculty. Unfortunately by considering them to be parallel and separate, they have come to be viewed as largely independent. But I believe that this represents a serious error. Operationally, at any academic medical school, care, teaching and research are mutually *interdependent* and *interactive* activities which must remain totally integrated at the bedside, in classrooms, and in the laboratory. The standard we set at the University of Toronto should expect staff physicians to successfully treat pulmonary edema in the Emergency room while simultaneously instructing students, interns and residents in the requisite clinical skills. After the patient is cared for the same clinical team should be capable of discussing and speculating about the mechanism of changes in the alveolar capillary barrier which lead to increased transudation of fluid.

Individuals who are able to carry out such an integrated medical teaching program are referred to as *clinician scientists.* Realistically we can only expect that a small percentage of each class will be able to perform successfully at this level. Nevertheless experience tells us that they will become the future Professors and ultimately assume leadership roles in Canadian medicine. Although few in number, they can set the standard and tone for the entire medical school.

Is it possible to identify such talent early? If so, how can they be trained to participate as medical professionals, yet at the same time work at the frontier of science?

In the past I believe the process of selection has been ad hoc and often serendipitous. With the pressures of real life, most students, regardless of their research potential, are side-tracked into the more remunerative and secure world of clinical medicine — unless (often accidentally) they encounter an appropriate role model who encourages them to pursue academic careers. Even if this positive connection is made at some time during medical school, research training is usually postponed until after clinical residency has been completed. Thus too many such students fall by the wayside. Others who pursue graduate training to acquire more research experience after residency use their degrees to advance up the academic ladder but often do not remain at the frontier in medical research.

This is not to say that the current mechanisms have not been successful in producing high calibre medical research scientists. Indeed the clinical departments at all Canadian universities are populated by a strong and productive cadre of clinician scientists. My point is that the present system makes it difficult, if not impossible, to integrate the practice of medicine with research during medical school at a time when the prospective student is probably most flexible and amenable to taking on a dual program. I believe the M.D./Ph.D.programme has the potential to correct this deficiency and thereby establish a breeding ground for the best clinician scientists.

Who are the right students for the M.D./Ph.D.programme? Who should the programme be aimed at? How should the students be selected? These are not easy questions to answer. It is my personal belief that we should focus on the most creative and gifted students early on in their careers, at a time when they are just completing their undergraduate degrees. These students will be subjected to the usual selective process for entry into medical school, but in parallel it falls to the M.D./Ph.D. coordinator and his selection committee to screen the applicants for their research as well as their academic potential. This is not an easy task. The successful candidates will have to demonstrate not only a high degree of scholarship but also a maturity and discipline that will enable them to successfully complete programme.

What advantage does the M.D./Ph.D. programme offer? Simply stated, within the combined degree programme students can achieve their professional and academic (research) goals while maintaining creative momentum — all within the medical school context. We can protect these students from the potentially stultifying atmosphere of medical school, which is, after all, oriented to producing physicians and not research scientists. It may take longer, probably 7 years, but at the end they will have experienced the best of both professional and graduate schools.

Given these circumstances it is relatively easy to understand the advantages of the M.D./Ph.D. programme for the appropriate students. It also seems inevitable that such individuals as they graduate will eventually have an important positive impact on medical science at the national level in Canada. But what does this programme have to offer to the University of Toronto Faculty of Medicine?

As I see it there are two interrelated local benefits. First, this programme will inevitably become a drawing card for some of the best students across North America. This has already begun to happen and at least one or two of the applications that I have received for this year have stated that their reason for seeking admission to the University of Toronto is because they wish to enter our M.D./Ph.D. programme.

The second benefit for our faculty is less tangible but probably more important. Some of you might ask how three or four M.D./Ph.D. students per year can have any impact on a medical school. But it is clear to me that the presence of these students in our midst provides us with a continual intellectual renewal and challenge. The majority of every medical class is destined to emerge as first rate physicians, subspecialists and clinical teachers. A minority will be able to make conceptual breakthroughs, generate new ideas and open new vistas in our understanding of disease mechanisms and therapy. I sincerely believe that the M.D./Ph.D. programme will be a well from which we will draw such talent. Such individuals must therefore be permitted to continually circulate amongst us and with appropriate nurture and protection they will be able to carry on the tradition of excellence in the Faculty.

Plans for the Future

The I'Anson Fund has graciously undertaken responsibility for funding up to three new students per year up to a maximum of 15 at one time. Funding commences in year three of the programme, i.e. funding is available for the three years devoted to Master and Ph.D. degrees and the last two years of medical school. It is my opinion that we must strive to achieve financial support for the complete seven years of the M.D./Ph.D. programme as soon as this is practicable. This is important not only as an enticement but also to ensure security for students who are undertaking a rather long training programme. It is both an inducement and a reward to successful candidates.

The other issue that must be resolved is how to fund more than three students per year. Indeed, how large should programme grow? My current policy is to try and accept as many suitable people as I can into the programme and then find money from sources other than I'Anson. In the current climate of constrained research funding, it takes a great deal of courage and zeal to embark on a research career in medicine. It is my hope that the M.D./Ph.D. programme will act as both a magnet and support for young people interested in training as physician scientists.

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Seeking and Finding Broader Horizons

Jennifer Young, 8T8

My first steps on African soil were on the steamy tarmac of Ouagadougou ("wah-gah-doo-goo") International Airport in the stifling humidity of a rainy season's night. Carmen Tremblay (my Canadian companion) and I warily approached the airport customs, forewarned of the rumoured corrupt African bureaucracy and the recent Marxist coup d'etat that had occurred the previous month. The friendly African faces that greeted us were belied by their machine guns and army fatigues. We frantically looked around for our Voltaic contact, Scholastique, who was to meet us and whisk us away from this unsettling uncertainty. She was nowhere to be found. With the exception of the African Soldiers, Carmen and I were the only ones left in the airport. We had already tried a phone which didn't work. We soon realized that the search for Scholastique would have to begin the next day. We left the airport with directions to a hotel and finally found it after dodging the mopeds, children and animal life that crowded the dusty red streets. Unfamiliar with the currency and the safe food to eat, we resorted to the cheapest room, drank our first Voltaic beer in the noisy bar and ate delicious fresh peanuts which we bought from a little girl at the side of the road. The hum of the fan and the strains of the rock band The Police were the last sounds I heard on that first plunge into my African experience.

I was finishing my last year at McGill and had medical school in the stars, but before I jumped into the constellation, I knew I wanted to do something totally different. Canadian Crossroads International (CCI) gave me the opportunity — a four month immersion in a developing country. My application was in by mid-September 1982, I was chosen by the end of October and I was told I would be going to Upper Volta (now called Burkina Faso) in September 83. I admit to initially thinking that Upper Volta might well be somewhere in Bavaria, but a World Atlas set me straight showing it to be in West Africa, two hundred miles south of Timbuctou.

CCI offers a summer session (end of May to end of August) and a fall session for which I had opted, planning to travel in Europe on my way back to Canada. Fundraising for my required $1400 was a group effort for the four students from Montreal who were also heading off to some strange and exciting destination in 1983. By the end of April, the funds were in and I had a summer of research work to put in before I flew off with Carmen, across the Atlantic Ocean and Sahara Desert.

Our inauspicious beginning to our Voltaic adventure was the beginning of the many circumstances that tested our adaptibility. We were constantly surprised at how easy it was to take it in stride. Once we had located Scholastique (who hadn't received the telegram telling of our arrival time), she treated us royally, taking us to meet her friends and family and introducing us to typical meals, drinks and social gatherings. We had been told to avoid the water so when a gourd of brown liquid was passed around at a family gathering, we politely declined in our best African. Afterwards Scholastique informed us that the liquid was millet beer and that we had passed up a real taste sensation. This also explained why the folks at the gathering were getting quite jolly and pink-eyed. Within a week, these errors occurred less often and we started to feel far less alien. Thankfully, the Voltaics were very welcoming and very forgiving.

Carmen and Scholastique dropped me off in Po, 150 kilometers south of the capital where I was to live for the next three months. Gerard and Alise Adouabou became my surrogate parents and I shared their compound with their seven kids, two dogs, one monkey, many chickens and two roosters. The parents were both salaried teachers (putting them at the upper end of the economic scale) and the family spoke fluent French. The house was mud brick with an aluminum roof and I was privileged to receive my own room with a sponge mattress, and a table and chair. Most of the home life went on the large sandy courtyard which was completely shaded by two huge mango trees. The tap, the outhouse and the washing space were in the back of the courtyard and the cookhouse and outdoor fire were off to the side. There was no electricity and I came to love writing my letters by

the light of my petrol lamp.

Food preparation involved a large part of the day and my forté was to go to the market and help pick up the needed ingredients for the noon and evening meals. I developed my bartering skills as I came to speak a few commercial words of Kassina and had a lot of fun with this form of social interaction. Our noon meal usually consisted of rice with a peanut sauce, whereas our evening meal consisted of sorghum flour paste with an okra or leaf sauce. I relished the rice, but the sorghum paste and the okra sauce required some adjustment. The softness of the paste and the sliminess of the sauce made for a rather unappetizing texture as they lingered on my tongue. Nonetheless, I became a discerning paste-taster and even missed that diet somewhat upon my return to bread and butter as my main starch.

The work that Crossroads had arranged for me was rather loosely defined as I was the first Crossroader to come to Upper Volta. I was primarily there to test the feasibility of available volunteer possibilities. Thus I was in the lucky position of being able to choose whatever I wanted to do within the town. During the three months in Po, I spent a month in the hospital, two weeks with the Catholic Mission, a month in the schools and two weeks visiting various other services. I visited Carmen on her placement in a city about eight hours away and saw what it was like to live a modernized life in Africa with the luxuries of gas stove cooking, a TV, a shower and electric lights. I was happy that I was experiencing something a bit more "African".

Those four weeks I spent in the hospital taught me a lot about health care in Africa, but I came away with more questions than answers. There is an unspoken tug of war between traditional healing in the form of herbal remedies and village medicine men and Western healing with its drugs, clinics and hospitals. I touched briefly with the world of the medicine man when one of the Adouabous was treated for a recurrent cramp over a period of four days. Often people would first go to their village healer before trying the strange, expensive and disappointingly ineffective modern medicine. All too often the hospital was seen as a place to go to die. Although improving health care in Africa does not lie solely in better developed Western medical care, the month I spent at Po's hospital convinced me that an improvement in the services that exist could only be beneficial.

My initial impression was of the hospital's potential as a well rounded health-care service. The main building contained the operating rooms, a laboratory and X-ray room, offices for the doctor, nurses and head of maternity, and a maternity ward with three delivery tables and a recovery room. The operating room was used daily for changing bandages and its open doors made it a thoroughfare to the outside. The lab was not in use because the previous technician had been relocated a year ago and had not been replaced. The second building contained eight rooms with four beds each, a nursing station and had an accessory isolation ward for infectious diseases. Another building housed both mothers and their children who were being treated for severe malnutrition.

My first week was spent in the maternity division which was run by a nurse specialist in obstetrics and gynecology and three midwives who had received formal training for a year. As Monday was the prenatal clinic for the mothers of the south-east quadrant of the hospital's region, by 7 a.m. there was a huge lineup of swelling bellies lined up outside the door. Each woman brought her record with her, a 5 × 8 cm booklet that had pertinent data of her health recorded for however long she had been able to keep track of the book. Records going back only a few months were common because such books were easily lost but I was surprised that some had lasted years. Once the booklet was handed over, the mother would heave herself onto a table where the height of her uterus was measured, the fetus' head and heart checked and signs of edema and/or anemia noted. Furthermore, the mother was provided with iron and vitamin supplements, as well as any nutritional advice that the necessary. After the last mother was measured and recorded, the midwives would retreat to the steps outside the clinic where they watched passers-by, cracked peanuts and gossiped while waiting for a woman in labour to arrive.

My first experience with a delivery was not what I had expected. As we sat devouring peanuts, a pregnant woman approached us with a basin of clothes on her head. The midwife on duty hopped up and followed her as I scrambled after them both, hoping that this was to be my chance of witnessing a birth. The pregnant woman deposited her basin in the recovery room, spread out a cloth on the delivery table, positioned herself appropriately and began to push. Five minutes and one groan later a baby boy emerged! This wasn't the ordeal of prolonged and painful labour that I had felt was every woman's curse. The child was washed and whisked away by the first of several attendants, and when the afterbirth appeared, it too was removed by a second attendent. The placenta, having spiritual value, was buried and consecrated by a member of the woman's family.

Meanwhile the mother lay unattended and weary. The urge to talk to her was overwhelming but my inability to speak the language necessitated only non-

verbal comfort. The woman remained in the recovery room for a few hours and thereafter was hospitalized for a couple of days. To my surprise I saw her sweeping the area where she had lain in the recovery room, picking up her affairs and walking herself over to her allotted bed. Further experience showed me that not all women were as stoic and strong as she but I was struck by how the whole birth process was dealt with in such a nonchalant way with the mother receiving no special treatment or recognition for the ordeal she had just experienced.

A two week crash course in tropical diseases followed as I began observation at the consultation service. The major complaints were diarrhea, headaches, cramps, vomiting and coughs in permutations and combinations that indicated one of the several common and debilitating diseases. Parasites and malaria are a part of every Voltaic's life and occasionally the disease flares up and makes symptomatic relief necessary although the disease is never "cured".

A typical day in the clinic began at 6:30 am for the patients who came to line up at the door and at 8:00 for the nurses who started to examine the throng. Patient Number 1 would enter the office, hand the nurse their booklet and describe his complaint, either directly to the nurse or indirectly through an interpreter if the nurse did not speak his language. A few questions were asked by the nurse, a diagnosis was made and a prescription given out, occassionally accompanied by a day's dose of the medicine, if any happened to be available. Therefore, the patient was responsible for the purchase of the medication at the town's overpriced pharmacy. Patient Number 2 would follow and the cycle was repeated, sometimes sixty times within two hours. There were no lab tests as the lab was inoperative and thus treatment programmes were given on an empirical basis — if the medication make the patient worse, he/she would return and something else would be tried.

The doctor examined the challenging cases and was responsible for all the minor surgery that the hospital could perform, including stitches for lacerations, circumcisions and hernias. Operating room cleanliness consisted of washed gowns, instruments sterilized by flamed alcohol, washed and sterilized gloves, sterilized stitches and clean but not sterile dressings. Surgery was planned to coincide with an adequate supply of surgical equipment, as gauze bandages were depleted long before new stock was received from Ouagadougou. If someone required major surgery or had an illness beyond the hospital's treatment capacity, he would be evacuated to Ouagadougou's overcrowded and understaffed hospital. The patient's family was responsible for the cost of the ambulance gas and this forty dollar expense is enormous if one considers that the average annual income in Upper Volta is about $150.

My final week was spent in the hospitalization section where I attended morning rounds and visited with those patients who could speak French. A patient did not have to pay for a hospital bed but he was responsible for his own food, cleanliness and clothing. A female member of the family served most often as the nursemaid and would be seen washing clothes, preparing food in the nearby cook shelter or sweeping around the patient's bed. The patient had to buy the medication he required for treatment if the hospital did not have any available. If a patient was able to walk, he would line up outside the nurse's station for his daily injections. My untrained eye was unable to judge the adequacy of the medical care but patients seemed to improve as I did not hear constant

and anguished wailing emanating from the hospital's corridors.

I did not visit the malnutrition centre as there were no children being treated there during my stay. Women were too busy in the fields to be able to afford the time to come and stay with only one of their children for an extended period of time. Other women, either relatives or co-wives, would take over for an absent mother, but there was much pressure for a woman to return to her many household and agricultural duties.

Such were the workings of the hospital as I observed them. My list of prescriptions for an improved facility are endless but includes more of the essential medication and supplies, a lab technician, a sterile operating room, a greater number of staff to reduce the clinic load and increased staff-motivation to examine and treat patients. It was frustrating to be an observer, to be powerless, yet it is this very frustration which fuels my continued desire to help the ailing.

Looking back on the time I spent in Po, I realize that the only direct positive benefit I had to the people there was in my role as a good-will ambassador. The benefits were largely personal in that I have gained a perspective on another way of life, which enables me to appreciate that strengths and the weaknesses of our own society in contrast to one that is vastly different from ours. As I now have some understanding of the enormous complexity of Third World development, I am in a better position to evaluate the potential and importance of development projects. I hope that this article will encourage a few others to pursue a similar experience, as it was one whose benefits I have never ceased to discover.

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Medicine As A Human Experience

(David E. Reiser, David H. Rosen
University Park Press, 1984.)

Medicine As A Human Experience comprises essentially a collection of essays drawn together to argue the need for a further emphasis on 'humanity' or the 'art'of medicine within medical training. It is formally opened by a foreword by Norman Cousins, author of *Anatomy of an Illness,* which is then followed by a prologue by a medical student, John Rosenberg. The rest of the book is an exploration by David Rosen and David Reiser of Engel's biopsychosocial model applied to medical care.

As Norman Cousins points out in his preface this book is primarily written to clarify some of the principles of 'integration' that are essential to humane and competent patient-care. By 'integration', Cousins means "not a murky principle but . . . the need to affirm the importance of the human spirit, dignity, fullness and hope in the medicine" (p.x). Cousins, in his preface, goes on to differentiate between the "hard" and the "soft" of medical curricula, where the fact-based or "hard" subjects are often viewed as the real core of medicine. But, argues Cousins, it is indeed the so-called hard core of medicine that eventually gets challenged and dismissed in the light of new scientific knowledge. Thus, in many respects, the "soft" subjects endure better the test of time:

> The way a doctor listens to a patient, his ability to inspire the patient's confidence, to communicate that which must be communicated in a way that does not destroy hope are the things referred to as the "art of Medicine". This is what medicine is all about, and this is what endures. (p.x).

However, far from a dismissal of the 'hard facts of medicine', this book attempts to reconcile the 'soft' and 'hard' of respectively 'science' and 'art' into a comprehensive and balanced approach to patient-care. It particularly addresses the prevalent problem of ineffective communication, which regardless of scientific prowess, has a profound, deleterious effect on patient-wellbeing. Cousins ends his preface by a poignant appeal to medical students:

> To the students who read, and more important *understand* the spirit and essence of this book, I would say, without hesitation or fear of hyperbole, you are medicine's future. You are also its only hope.
> . . . I pray that, even as you attach the highest value to your science you will never forget that it works best when it serves your humanity. For ultimately, it is our respect for the human soul that determines the worth of our science. (P.xvi).

John Rosenberg, a medical student, is both more emotional and scathing of the present organization of medical training and the serious implications it has for compassionate patient-care. He describes his medical training succinctly:

> . . . I have spent 4 years as a medical student and I know there is maddness in the system. The irony is profound — we are here in medical school learning to take care of patients, yet too often we graduate learning nothing of care. (p.12).

Indeed, Rosenberg feels that medical education possesses a "dark side", "one that is painful and tragically deforming in young spirits". He describes this "dark side" as not all of medicine, but "too much of medicine for those going through the educational system as it is currently constructed" (p.2). He argues that he himself has been changed by his educational experiences. He feels that he has been pushed by his medical training to "adopt technological and pseudoscientific attitudes towards patients *in place* of the more humane compassion and empathy". (p.3). Rosenberg ascribes this "loss of empathic skills" to the entrenched pedagogical methods of the medical hierarchy, where students are guided towards "proper" professional conduct through the not-so-subtle technique of ridicule and scorn. He claims that this system of demeaning pedagogy seriously "flaws" medical trainees making them as "narrow and dehumanized" as the system that trained them. Like Cousins, Rosenberg ends his prologue with a passionate appeal to the privilege and life-affirming possibilities of medicine:

> I have been outraged by many of my educational experiences. They *have* been immensely destruc-

> tive. Yet I remain deeply affirmed in my decision to be a doctor. I continue to feel privileged to participate so fully in life. I have experienced the full range of significant events from the first cries of birth to the final rasp of impending death. What a privilege. (p.10).

Hence, Rosenberg ends his words also with a dilemma: how to make medicine remain a privilege, a celebration of the very intimacy of life, without making it so destructive, of the human spirit, both, in terms of students and patients. Though Reiser and Rosen do expand on this appeal in terms of the patient, they never address adequately the shortcomings of the medical educational model. Instead, they propose the use of a biopsychosocial model created by Engels as a basis for students to approach more integrated patient-care. Within this model, scientific competence is seen, not as a separate entity, but rather as an indispensable part of compassionate care. Indeed, the biopsychosocial model could be seen as a sharply focused picture of total competence.

There are four "guiding principles" of the biopsychosocial model, as first proposed by Engels: acceptance, empathy, conceptualization, and competence. Acceptance is described as the unjudgemental reception of information. It is a passive act, with the due emphasis on *receptivity* rather than *action*, which allows bonding to occur between doctor and patient. Empathy, is defined as a more dynamic relationship between closeness and distance. Needed is a certain fluency on the part of the doctor to moderate the distance between him and the patient for mutual comfort and effectiveness. Empathy, the authors stress, is *not* simply identity or the act of identifying with the patient. It is more a tacit recognition of the needs of the patient in a given situation. Conceptualization is a view of the patient and his/her illness within a hierarchy of encompassing systems which include the microscopic, the biological, the social and the cultural. Finally, competence, embraces both technical expertise and an empathic approach to patient-care. In short, this model encompasses the Osler concept of physician education in two spheres — the inner and the special where inner education constitutes a knowledge of one's self, and special education comprises a knowledge of medicine.

Perhaps, most valuable to medical students, is the stress Reiser and Rosen place on the significance of feelings, and the important role they can play in proficient patient-care. Indeed, they emphasize that not only are the expression of feelings inevitable in medical training but they are essential and amenable to scientific study. (p.85). A doctor who understands feelings — "both his own and his patient's" is a better doctor through his more thorough understanding and can thereupon provide more effective help. The authors go on to argue that the "failure of contemporary education to help students to integrate their affect with their intellect may prove to be its greatest failing":

> Our profession is littered with casualities; doctors who are addicted, alcoholic, and divorced or else deeply depressed, disillusioned and alone. For rare individuals, the apparent opportunity to deny all emotion may seem a welcome relief, but it is a dangerous denial and one most of us do not welcome anyhow. (p.86)

Being out of touch with personal feelings, insist Reiser and Rosen, places both the patient and the doctor at great risk. Failing to deal successfully with feelings leaves the very competence of medical care fragile, vulnerable, easily smashed. Instead, feelings could be utilized clinically as an important means of providing "vital clinical data". A clinician, moreover, who is in "good touch with his feelings possesses a most wondrous and reliable diagnostic tool" (P.86). Indeed, using the data of our own reactions and responses towards patients it is possible to build a decent hypothesis to explain the biological psychological and social sequelae of illness.

Finally, Reiser and Rosen provide a series of "strategies", "hip-pocket standbys" and "pearls" to aid the student towards better patient-care. These include such advice as "respect confidentiality", "do not be afraid to be yourself", "be warm but not contrived", "pay attention to your feelings" and "share your joys and your pain with a friend". The book ends with a desiderata to medical students, the novitiaties of this complex and wondrous calling, medicine. Like the orginal desiderata, it is both a guide and an injunction to find personal quietness in the midst of the storm of medical training. It includes "remembering that being a doctor is a privilege", that in the field of medicine, "you are free", that you need to accept ambiguity and personal limitation, and learn how to heal yourself. Perhaps, most reassuring to us in the midst of training, is the reminder that medical school does not last forever.

Medicine as a Human Experience provides a much needed approach to total holistic care within medicine. But, in many respects, it only provides a tantalising droplet of water, where an ocean is needed. Though offering some anecdotal, practical solutions on an individual level, it fails to address how the medical educational system could be improved to include a more humanistic approach to patient-care. In this

visible omission to provide some solid suggestions, some concrete educational model, the onus is left on the student within the sytem to somehow hold on to his integrity and educate himself, without substantial support of faculty or role-models. As a result, this book remains somewhat insubstantial in its argue-ment. The light has been shone on the forest but the path is yet to be broken. Obviously, there are yet many steps to be taken before medicine fulfills its potential. Reiser and Rosen have shed some light on the problems inherent in current medical training; now there is a need for many to show the way.

Pamela Stewart, 8T7.

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The Youngest Science

(Lewis Thomas
Copyright 1983 Viking Press)

In 1937, the year sulfonilamides were introduced, Lewis Thomas had just graduated from Harvard Medical School. He recalls his astonishment when patients with pneumococcal and streptococcal septicemia, instead of dying, improved within a matter of hours and felt entirely well the next day; "For an intern it was the opening of a whole new world. We had been raised to be ready for one kind of profession, and we sensed that the profession itself had changed at the moment of our entry: we became convinced overnight that nothing lay beyond reach for the future. Medicine was off and running."

Indeed, Dr. Thomas is off and running once again with his own intimitable brand of enthusiasm, irony and insight. In case you have managed to get by without hearing of Lewis Thomas, he is arguably the best sceintific essayist in the world. Initially acclaimed several years ago after the publication of *Lives of a Cell,* he has also written two other books, *Medusa and the Snail* and *Late Night Thoughts on Listening to Mahler's Ninth Symphony.* All three are collections of essays gleaned from monthly pieces he wrote in the "New England Journal of Medicine", on subjects ranging from Alchemy, to Etymology, to Magic, to the nuclear arms race. But mostly they are about science — about its role, about its relationship to everything, and about its sheer power and the inherent fascination it holds. What is most remarkable about these essays, however, is not only are they full of fun, wit, and imagination, they are wonderfully written.

The Youngest Science attempts to be more than a book of essays. Loosely structured as an autobiography but written in the same lucid, discursive prose, Dr. Thomas' life story becomes, in part, a means of telling another story: the development of modern medical science.

Appropriately enough, his father was a doctor — of the dedicated, small-town variety — at a time when, as he puts it, "the practice of medicine was accepted as a chancy way to make a living, and nobody expected a doctor to get rich, least of all the doctors themselves." The picture he paints of his father's commitment, frustration, and overwork is an endearing though perhaps hackneyed one. Nonetheless we get a sense of what it was like to practice medicine at a time when there was little a doctor could do but dispense folk remedies trumped up in Latin, apply the healing hand of compassion, and wait.

Of central concern for Dr.Thomas is Medical Education. He begins with his father's school years at the turn of the century, explaining the influences of Osler's attempts to introduce some semblance of scientific rigor in a discipline that had made little real progress over the centuries. Thomas' penchant for irony is revealed in the following anecdote about a "highly successful pomposity" from New York who placed particular reliance on the tongue, believing he could detect significant differences by palpating that organ: "The ward rounds conducted by this man were, essentially, tongue rounds; each patient would stick out his tongue while the eminence took it between thumb and forefinger, feeling the texture and irregularities, then moving bed to bed, diagnosing typhoid in its earlier stages over and over again, and turning out a week or so later to have been right, to everyone's amazement.

Thomas' medical school years at Harvard are remarkable to the extent that they were in principle much like his father's training. Advances in physiology, biochemistry, microbiology, and immunology had changed much of the detail over the 35 years. But the purpose of the curriculum still focussed almost entirely on diagnosis based on clinical symptoms and signs. Treatment was something only surgeons discussed, and then only in relation to the management of injuries or the draining of abcesses. Within this context it is no wonder the advent of antimicrobials made such an impact on young Lewis.

Following the tribulations of an internship year, and a stint during the war doing microbiological work in Guam, he returned to complete a fellowship in Neurology, by which time his career in research was firmly established. We follow his across the country from one appointment to another, each one apparently more enticing than the last. By the time the book ends Thomas has, among other things, held assorted chairs in numerous departments across the country, established and ran several research facilities including the Sloan-Kettering Cancer Centre and Bellevue Hospital in New York, ran two medical schools in-

cluding Yale, published over 200 scientific papers, served on state boards of health, and begun writing regular essays for NEJM. In discussing all this, a chapter is reserved for his wife, and a chapter deals with being sick, but his main concern is research — explaining it, encouraging it, and marvelling at it.

In fact if Lewis Thomas is anything he is one of Medicine's greatest spokesmen for basic science support. It is when describing the course of a thought or a curiosity developing into a series of experiments that his enthusiasm reaches its highest pitch. Throughout the book he is constantly tracing and linking various threads of his own research, some of which took place over 30 years. Driven as if by sheer curiosity and a sense of wonder, tied to a disciplined and imaginative brain, he is preoccupied with such apparently diverse phenomena as mycoplasms, the schwartzman reaction, papain, and arthritis. Such entities, in his hands, have a way of suddenly becoming interrelated, connecting links in a vast complex puzzle. Indeed, the book can be seen as simply an introduction to the potential and fascination of pure research. You get the message that curiosity and serendipity have as much to do with success as diligence and logic.

It is both his strength and his weakness that Dr. Thomas could not possibly restrict himself to a strictly autobiographical structure. There are chapters on nurses, and mice olefaction, and etymology. Yet this is simply a reflection of his character. In his earlier book, *Medusa and the Snail* he claims to be a great fan of the French essayist Montaigne. And like Montaigne he tends to start on one subject, and ends up writing about just about everything else. The results is rather undisciplined, digressive writing that happens, like Montaigne's, to be very rich and very interesting. What it tends not to be however, is thorough. This is perhaps the difficulty with *The Youngest Science* — that it promises so much and ends up merely providing a sampling of many things. By the end we are in awe of Thomas' talents and accomplishments but you don't really feel you know him. Where are the anxieties, the self-doubts, the hang-ups: everything seems a bit too rosy, a bit too nice. Similarly the story of medicine is far from complete, and you have little grasp of his scientific accomplishments.

Nonetheless, the book is a wonderful read — stimulating, entertaining, and insightful. Think of it as yet another collection of eassys. Then, in Lewis Thomas fashion, not knowing where you are going to end up becomes rather fun.

Kingsley Watts, 8T7.

AWARDS PROGRAMS IN DIABETES

The Canadian Diabetes Association (CDA) the Juvenile Diabetes Foundation (JDF) and the Association du diabète du Québec (ADQ) have joined their efforts to promote and support research in the field of diabetes. The JDF has an established research grant and award program and the ADQ an award program. The CDA has both a research grant and an award program. More recently, the CDA, JDF and ADQ have organized a joint fund raising campaign at the level of the national corporations and private foundations under the heading of Diabetes Canada. The major thrust of Diabetes Canada is to support research personnel and research trainees. The applications are to be submitted to and will be judged by the Personnel Awards Committee of the Canadian Diabetes Association.

1. Scholarships

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2. Fellowships

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One from ADQ

(con't on p44)

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3. Studentships (con't from p43)

Studentships from ADQ are designed to support highly qualified graduate students who are undertaking full-time training in diabetes related to research leading to an M.Sc. or Ph.D.degree (or equivalent).

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Awards offered: Up to two from CDA

5. Traineeships

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For application and information contact:

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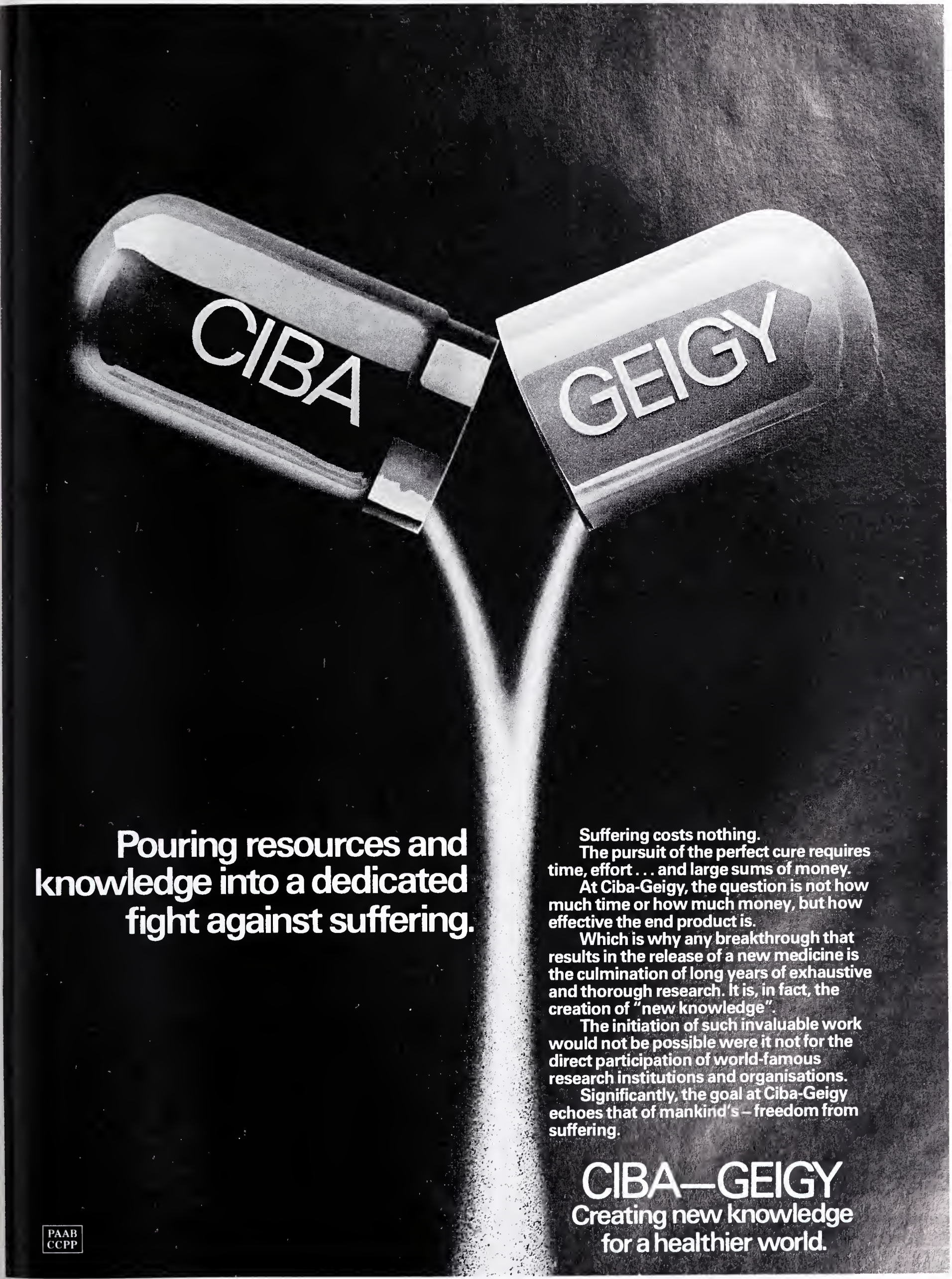

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